JVC

SERVICE MANUAL

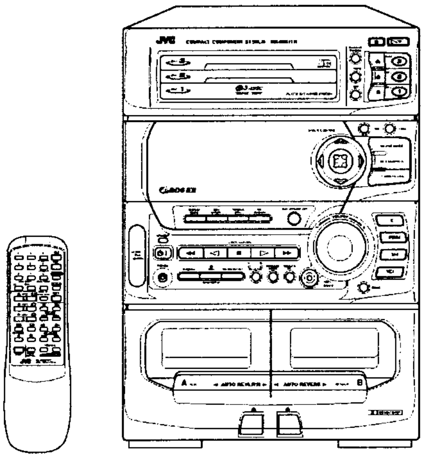
COMPACT COMPORNENT SYSTEM

CA-D651TR

Pick up	OPTIMA-150
CD signal Processor	MN35510

Area Suffix

EF	Continental Europe Except Germany and Italy
EN	Nordic Countris
G	Germany



COMPACT disc DIGITAL AUDIO

R·D·S EON

Contents

Safety Precautions ---------- 1-2
Important for Laser Products ---------- 1-3
Instruction Book ---------- 1-4
Description ICs ---------- 1-23
Internal Connection of the Dispray ---------- 1-35
Disassembly Procedures ---------- 1-38
Connected an extension cord ---------- 1-54
Adjustment Procedures ---------- 1-55
Flow of Functional Operation Until TOC Read ---------- 1-59
Maintenance of Lazer Pickup ---------- 1-60
Block diagram ---------- 1-61
Schematic Diagram ---------- 1-63
Printed Circuit Board ---------- 1-71
Parts List ---------- 2-1

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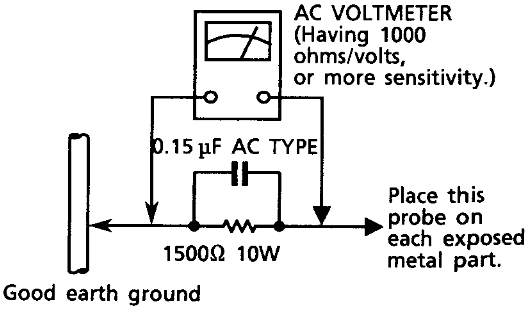
No. 20610
Mar. 1997

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 µF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).


AC VOLTMETER
(Having 1000 ohms/volts, or more sensitivity.)
0.15 µF AC TYPE
Place this probe on each exposed metal part.
1500Ω 10W
Good earth ground

Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION : If safety switches malfunction, the laser is able to function.
6. CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

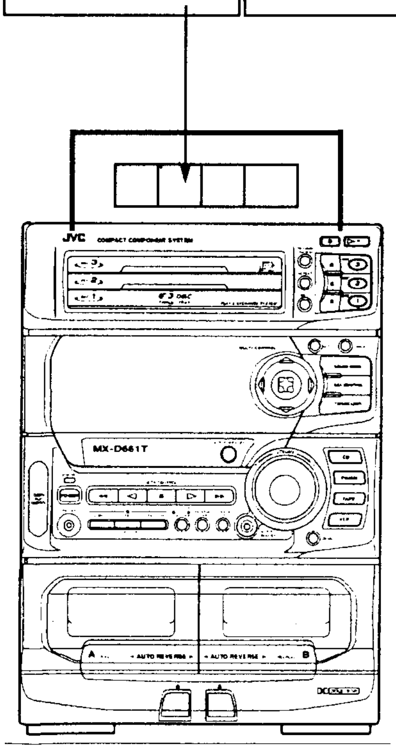
ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

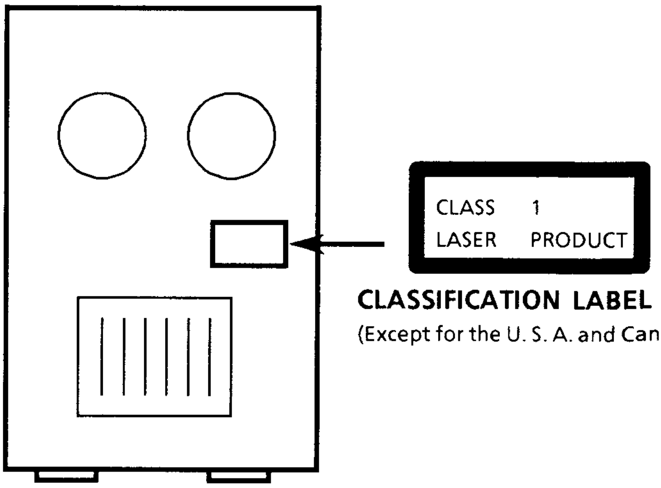
ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL
(Except for the U. S. A.)

DANGER: invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)	VARNING: Osynling laserstråling när denna del ä öppnad och spärren är urkoppled. Betrakta ej stålen. (s)	ADVARSEL: Usynling laserstråling ved åbning, når sikkerhedsafbrydere er ude at funktion. Undgåudsættelse for stråling. (d)	VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)





CLASS 1
LASER PRODUCT

CLASSIFICATION LABEL
(Except for the U. S. A. and Canada)

Specifications

Amplifier Section

Output Power (IEC 268-3/DIN)	47 watts per channel, min. RMS, both channels driven, into 6 ohms at 1 kHz with no more than 0.9% total harmonic distortion.
Input Sensitivity/Impedance (1 kHz)	
VCR	300 mV/45 kohms
Speaker terminals	
Main speakers	6 - 16 ohms

Cassette Deck Section

Frequency Response	
Type II (CrO_2) :	30 - 16,000 Hz
Type I (NORMAL) :	30 - 15,000 Hz
Wow And Flutter	0.15% (WRMS)

CD Automatic Changer Section

CD Capacity	3 discs
Dynamic Range	93 dB
Signal-To-Noise Ratio	98 dB
Wow And Flutter	Unmeasurable

Tuner Section

FM Tuner	
Tuning Range	87.5 - 108.0 MHz
AM Tuner	
Tuning Range	
MW	522 - 1,629 kHz
LW	144-288 kHz

Dimensions	245 x 345 x 350.2 mm (W/H/D) (9-11/16 x 13-5/8 x 13-13/16 inches)
Mass	8.5 kg (18.8 lbs)

Accessories

AM (MW/LW) Loop Antenna (1)
Remote Control (1)
Batteries R6P (SUM-3)/AA (15F) (2)
FM Wire Antenna (1)

Power Specifications

Power Requirements	AC 230 V ∿ , 50 Hz
Power Consumption	125 watts 17 watts (in standby mode)

Design and specifications are subject to change without notice.

Getting Started

Accessories

Check that you have all of the following items, which are supplied with the CA-D651TR.

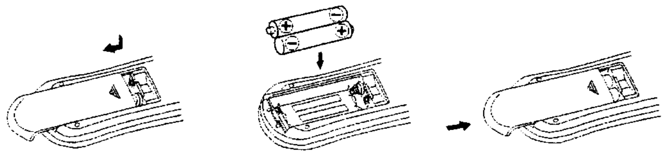
AM (MW/LW) Loop Antenna (1)
Remote Control (1)
Batteries (2)
FM Wire Antenna (1)

If any of these items is missing, contact your dealer immediately.

How To Put Batteries In the Remote Control

Match the polarity (+ and –) on the batteries with the + and – markings in the battery compartment.

R6P (SUM-3)/AA (15F)

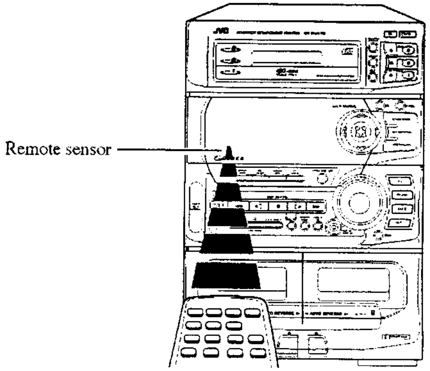


CAUTION: Handle batteries properly.
To avoid battery leakage or explosion:

- Remove batteries when the Remote Control will not be used for a long time.
- When you need to replace the batteries, replace both batteries at the same time with new ones.
- Don't use an old battery with a new one.
- Don't use different types of batteries together.

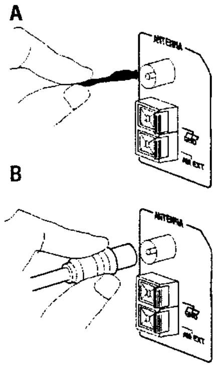
Using the Remote Control

The Remote Control makes it easy to use many of the functions of the CA-D651TR from a distance of up to 7m (23 feet) away.
You need to point the Remote Control at the remote sensor on the CA-D651TR's front panel.



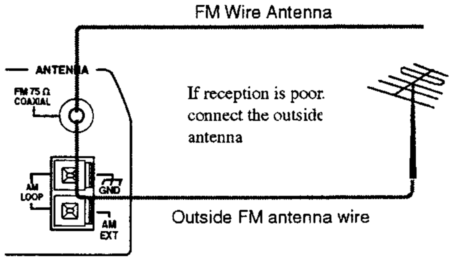
CAUTION: Make all connections before plugging the Unit into an AC power outlet.

Connecting the FM Antenna



A. Using the Supplied Wire Antenna
The FM Wire Antenna provided can be connected to a FM 75-ohm COAXIAL as temporary measure.
Extend the supplied wire antenna horizontally.

B. Using the Coaxial Type Connector (Not Supplied)
A 75-ohm antenna with coaxial type connector (DIN 45 332) should be connected to the FM 75-ohm COAXIAL terminal.



If reception is poor. connect the outside antenna

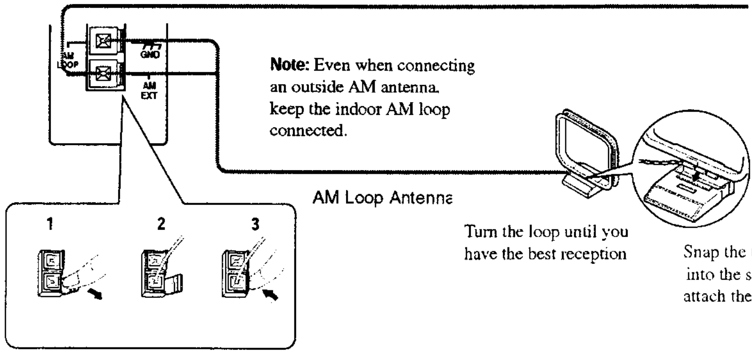
Before attaching a 75 ohm coaxial lead (the kind with a round wire going to an outside antenna). disconnect the supplied FM Wire Antenna.

CAUTION: To avoid noise, keep antennas away from metallic parts of the CA-D651TR, connecting cord and the AC power cord.

Connecting the AM (MW/LW) Antenna

AM antenna wire (Not supplied)

If reception is poor, connect the outside antenna.



Note: Even when connecting an outside AM antenna. keep the indoor AM loop connected.

AM Loop Antenna

Turn the loop until you have the best reception

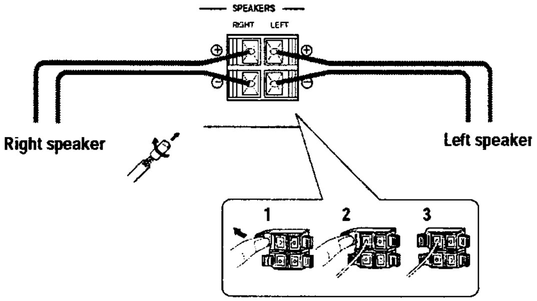
Snap the tabs on the loop into the slots of the base to attach the AM Loop.

CAUTION: Make all connections before plugging the Unit into an AC power outlet.

Connecting the Speakers *(Please refer to instructions for speakers as will when you connect speakers.)*

For each speaker, connect one end of the speaker wire to the speaker terminals on the back of the CA-D651TR and the other end to the speaker.

1. Open each of the terminals and insert the speaker wires firmly (be sure to remove the insulation at the end of each wire first), then close the terminals
2. Connect the red (+) and black (–) terminals of the right side speaker to the red (+) and black (–) terminals marked RIGHT on the CA-D651TR.
   Connect the red (+) and black (–) terminals of the left side speaker to the red (+) and black (–) terminals marked LEFT on the CA-D651TR

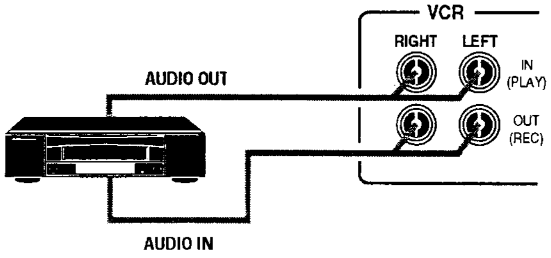


IMPORTANT: Use speakers with the correct impedance only. The correct impedance is indicated on the back panel.

CAUTION: If a TV is installed near speakers, the TV may display irregular colours. In this case, set the speakers away from the TV.

Connecting a VCR

Connect the VCR to the VCR terminal



Now you can plug the AC power cord into the wall outlet, and your CA-D651TR is at your command!

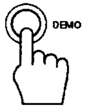
DEMO Mode

When the CA-D651TR is connected to an AC power outlet, a DEMO mode displaying some of the system's features automatically starts.
The DEMO display cycles through the following items repeatedly.

- Scrolling display of "DEMO MODE START".
- Demo of MULTI CONTROL.
- Demo of Sound Modes.
- Demo of continuous play from DISC-1 to DISC-3.
- Scrolling display of "TUNER RANDOM 40CH PRESET".

To turn the DEMO display off, press any of the operation buttons. "DEMO OFF" appears on the display and the DEMO display automatically stops.

DEMO OFF



To turn the DEMO display on, press the DEMO button

Notes:

- The DEMO display automatically starts when the power cord is inserted into a wall outlet.
- The DEMO display will not start if VCR is selected as a music source.

COMPU PLAY

COMPU PLAY is JVC's feature that lets you control the most frequently used functions of the CA-D651TR with a single touch.
One Touch Operation starts playing a CD, turns on the radio, plays a tape, etc. with a single press of the play button for that function. What One Touch Operation does for you is to turn the power on, then start the function you have specified. If the Unit is not ready, such as no CD or tape in place, the Unit still powers on so you can insert a CD or tape.
How One Touch Operation works in each case is explained in the section dealing with that function.
The COMPU PLAY buttons are:

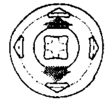
On the Unit

- CD button
- CD Player ▷/II button
- CD Player DISC-1 to DISC-3 buttons
- CD Player Open/Close (⏏) buttons
- FM/AM button
- TAPE button
- DECK CONTROL ◁, ▷ buttons
- VCR button

On the Remote Control

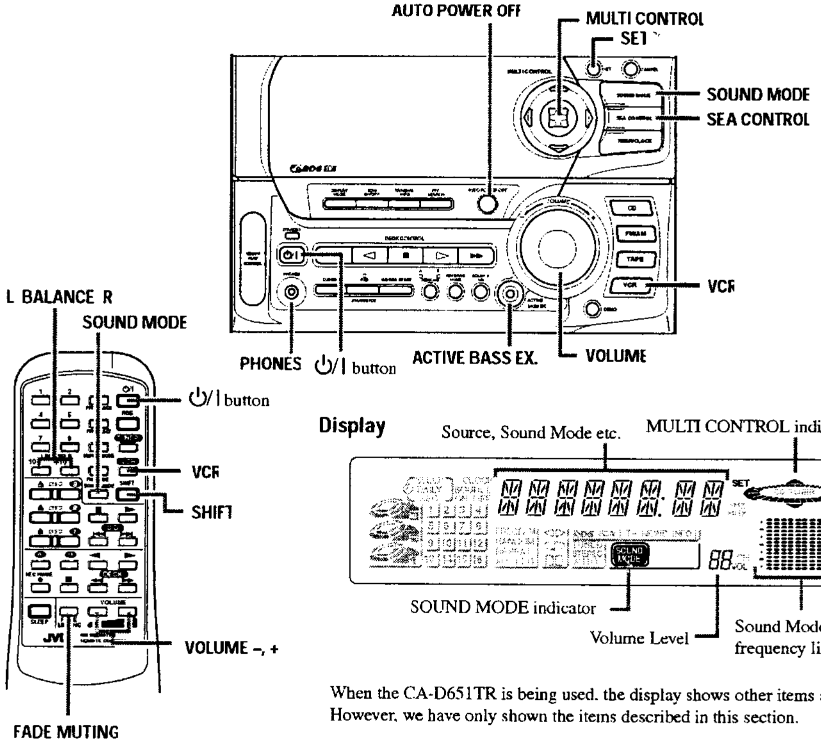
- TUNER button
- VCR button
- CD control ▶ button
- CD control DISC 1 to DISC 3 buttons
- CD control Open/Close (⏏) buttons
- Deck control ◀, ▶ buttons

Adjusting the Brightness of the Display

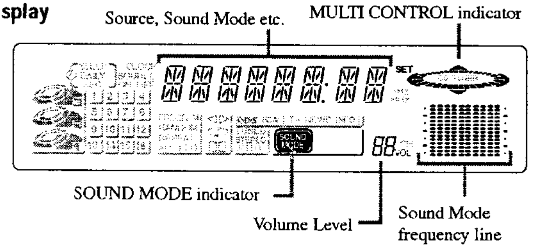


In Standby mode, you can adjust the brightness of the clock display.
Pressing the MULTI CONTROL stick in the upwards direction makes the display brighter.
Pressing the MULTI CONTROL stick in the downwards direction makes the display darker.

Using the Amplifier



Display



When the CA-D651TR is being used, the display shows other items as well. However, we have only shown the items described in this section.

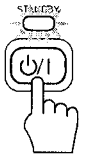
Turning the Power On and Off

Turning the CA-D651TR On

Press the ⏻/I button.

The display comes on and the STANDBY indicator goes out.
The CA-D651TR comes on ready to continue in the mode it was in when the power was last turned off.

- ☐ If the last thing you were doing was listening to a tape in Deck B, you are now ready to listen to a tape again in Deck B, or you can change to another source
- ☐ If you were listening to the Tuner last, the Tuner comes on playing the station it was last set to



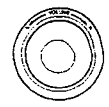
Turning the CA-D651TR Off

Press the ⏻/I button again.

The STANDBY indicator lights up and the display is blank, except for the clock display.

- ☐ Some power (17 watts) is always consumed even though power is turned off (called Standby Mode)
- ☐ To switch off the Unit completely, unplug the AC power cord from the AC outlet. When you unplug the AC power cord, the clock will be reset to 0:00 immediately, and preset Tuner stations will be erased after a few days.

Adjusting the Volume



or

Turn the VOLUME control clockwise to increase the volume or anticlockwise to decrease it.
Turning the VOLUME control quickly also adjusts the volume level quickly.
When using the Remote Control, press the VOLUME + button to increase the volume or press the VOLUME – button to decrease it.
You can adjust the volume level between 0 and 50.

☐ When the CA-D651TR is turned on from Standby mode, the volume is set to 0 and automatically increases to the previous volume level. To stop this automatic volume adjustment, turn the VOLUME control slightly or press the VOLUME button on the Remote Control.

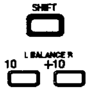
For private listening
Connect a pair of headphones to the PHONES jack. No sound comes out of the speakers.
Be sure to turn down the volume before connecting or putting on headphones.

FADE MUTING Function

FADE
MUTING

Set the Volume Level to 0 by pressing the FADE MUTING button on the Remote Control. Press this button again to restore the Volume Level to its previous level.

Balance adjustment



You can use the Remote Control to adjust the left and right balance of the speakers.

1. **Press the SHIFT button.**
2. **Press the L BALANCE R buttons (10 or +10).**
   The display changes to show the balance adjustment.

L - - * - - R

Pressing the L button (10) moves the pointer to the left, pressing the R button (+10) moves the pointer to the right.

L ⊢ - * - - R	L - - * - - R	L - - * - ⊣ R
Display when set for no sound from the right speaker.	**Display at the centre position.**	**Display when set for no sound from the left speaker**

☐ The balance is normally set to the centre position.

Note: If no adjustments are made for 5 seconds in balance adjustment mode, the display reverts to the previous display.

Reinforcing the Bass Sound

The richness and fullness of the bass sound is maintained regardless of how low you set the volume. You can use this effect only for playback.

To get the effect, press the ACTIVE BASS EX. (Active Bass Extension) button. "BASS ON" appears in the display and the indicator lights up.

BASS ON

ACTIVE
BASS EX.

To cancel the effect, press the button again. The message "OFF" appears in the display and the indicator goes out.

OFF

Sound Modes

The CA-D651TR has some preset sound effects that give you control of the way your music sounds, so you can tailor it for your room and for the quality of the source. We can give you some idea of how each one affects the music, but the only way to really tell is to try them yourself.
You can also create up to three of your own customized S.E.A. (Sound Effect Amplifier) settings and store them in the unit's memory.

☐ The preset sound modes include modes using surround effects and modes using S.E.A. effects
☐ Sound Mode effects cannot be recorded

Surround effect modes

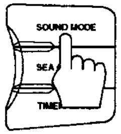
D, CLUB (Dance Club)	Increases resonance and bass.
HALL	Adds depth and brilliance to the sound, like in a concert hall.
STADIUM	Adds clarity and spreads the sound, like in an outdoor stadium.

S.E.A. effect modes

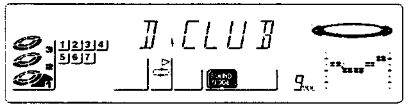
ROCK	Boosts low and high frequencies.
POP	Good for vocal music.
CLASSIC	Set for wide and dynamic sound stereo systems.

Selecting a Sound Mode

Using the Unit

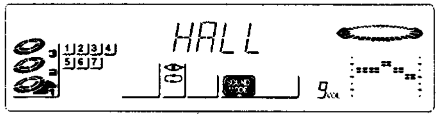


1. **Press the SOUND MODE button.**
   The currently selected Sound mode appears on the display.
   The MULTI CONTROL indicators light up to indicate the directions in which you can use the controller



Note: If no adjustments are made for 5 seconds in Sound mode after the SOUND MODE button is pressed, the display reverts to the previous display.

2. **Press the MULTI CONTROL stick to the left or right to select a Sound mode.**
   Use the MULTI CONTROL stick to select a Sound mode while sound mode is displayed. If the display reverts to the previous display, press the SOUND MODE button again and use the MULTI CONTROL stick to select a mode.



☐ The display also displays the frequency for the selected mode

Moving the MULTI CONTROL stick to the right →
←→D, CLUB←→HALL←→STADIUM←→ROCK←→POP←→CLASSIC←→MANUAL 1←→MANUAL 2←→ MANUAL 3←→OFF←→
← Moving the MULTI CONTROL stick to the left

To cancel Sound mode, select "OFF".

Unless sound mode "OFF" is selected, the red perimeter line around the SOUND MODE indicator is lit. If "OFF" is selected, the perimeter line goes out.

SOUND MODE ON

SOUND MODE OFF

Using the Remote Control

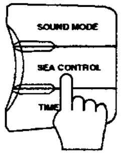
Press the SOUND MODE button.
The display changes with each press of the button as shown below.

→D. CLUB→HALL→STADIUM→ROCK→POP→ CLASSIC→MANUAL 1→MANUAL 2→ MANUAL 3→OFF→ (back to the beginning)

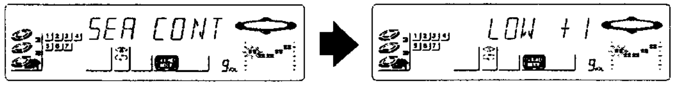
Customizing a Sound Mode

You can change an existing sound mode to suit your own preferences. These changed setting can be stored in the CA-D651TR's sound mode memory.

1. **Select the sound mode you want to change.**
   If you select D. CLUB, HALL, or STADIUM, the surround effect remains unchanged, but you can adjust the S.E.A. effect.

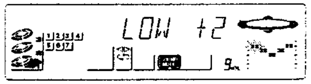


2. **Press the SEA CONTROL button.**
   "SEA CONT" appears in the display, then the low tone section of the tone equalizer is displayed and the MULTI CONTROL indicators light up to indicate the directions in which you can use the controller.

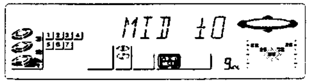


Note: If no adjustments are made for 5 seconds after the SEA CONTROL button is pressed. Sound mode appears on the display then reverts to the previous display.

3. **Adjust the settings using the MULTI CONTROL stick.**
   ☐ Adjust the level by adjusting the MULTI CONTROL stick up and down.
   The level can be set between +3 and –3 in seven steps.

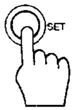


☐ Select the tone range by adjusting the MULTI CONTROL stick left and right.
You can select LOW, MID, or HIGH tones.

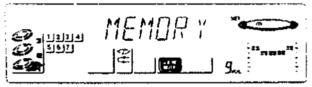


4. **Press the SET button.**
   "MANUAL 1" appears on the display.

5. **Select the memory number by adjusting the MULTI CONTROL stick left and right.**
   You can choose from "MANUAL 1" to "MANUAL 3".



6. **Press the SET button again.**
   "MEMORY" appears on the display and the settings are stored in the memory number selected.



☐ The sound mode is set to the settings you have stored.
☐ If you store new settings to a memory number that has already been used, the new settings replace the existing setting.

Auto Power Off

When playing either a tape or a CD, Auto Power Off will shut the Unit off when the tape or CD comes to an end. Although Auto Power Off is very useful for shutting off the CA-D651TR at night, you can also use it if you think you might forget to turn the Unit off when leaving the house or your room at other times of the day.

AUTO POWER OFF

To Use Auto Power Off
Press the AUTO POWER OFF button, the AUTO POWER OFF button lights up.
To Cancel Auto Power Off
Press the AUTO POWER OFF button again, the AUTO POWER OFF button goes out.

Important Information On Using Auto Power Off

☐ The end of CD playback varies depending on the play mode of the CD Player. If the play mode is Continuous or "RANDOM", when all tracks on the disc set in the CD player end, the power is automatically turned off. If the play mode is "PROGRAM", the power is automatically turned off when the last track you programmed ends.

☐ Auto Power Off will still work even though you press the REPEAT button.
Repeat Mode ("REPEAT ALL" indicator lights up on the display):
This automatically turns off the power after all the tracks on the CDs in the CD Player have been played
Repeat 1 CD Mode ("REPEAT 1 CD" indicator appears on the display):
This automatically turns the power off after all of the tracks on the CD have been played.
Repeat 1 Mode ("REPEAT 1" indicator lights up on the display):
This automatically turns the power off after the selected track has been played

☐ If you press the AUTO POWER OFF button while the tape is playing:
- If Reverse Mode is off, the Unit turns off when the current side finishes.
- If Reverse Mode is on, the Unit will turn off when the tape finishes playing in the ◁ direction.

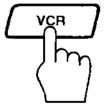
Using a VCR

Listening to a VCR

By playing the sound from VCR through the CA-D651TR, you can gain control over how the music or program sounds. Once the connected equipment is playing through the CA-D651TR, you can apply the sound effects.

☐ First make sure that the optional equipment is properly connected to the CA-D651TR. (See page 5).

1. **Set the VOLUME control to 0.**



2. **Press the VCR button.**
   When CA-D651TR is in Standby mode, the Unit is automatically turned on and "VCR" appears on the display.

3. **Start playing the equipment.**
4. **Adjust the VOLUME control to the desired listening level.**
5. **Select a sound effect mode, if you wish**

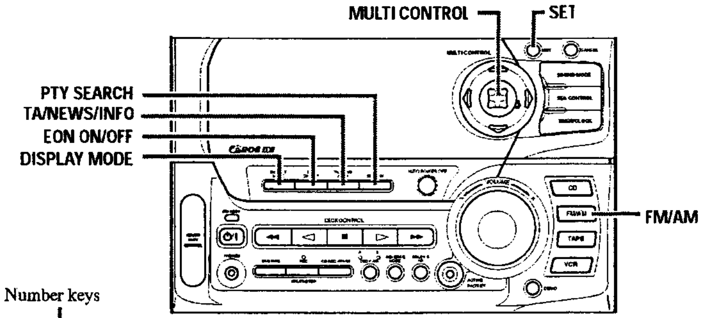
To Cancel the Setting
Change the source by starting any one of the CA-D651TR's built-in sound sources, such as the Tuner or CD Player.

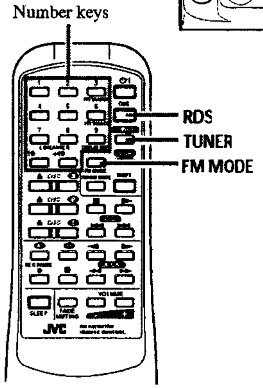
Recording to a VCR

To record to a VCR, start playback of the recording source of the CA-D651TR and start recording on your VCR. (Refer to the VCR's instruction manual for details on the recording procedure for your VCR.)

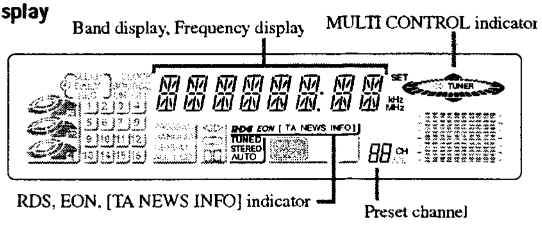
☐ You cannot record using Sound mode effects.

Using the Tuner





Display


Band display, Frequency display
MULTI CONTROL indicator
RDS, EON, [TA NEWS INFO] indicator
Preset channel

When the CA-D651TR is being used, the display shows other items as well. However, we have only shown the items described in this section.

You can listen to both FM and AM (MW/LW) stations. Stations can be tuned in manually, automatically, or from preset memory storage.

- ☐ Before listening to the radio
  - Check that both the FM and AM (MW/LW) antennas are firmly connected. (See page 4)

One Touch Radio

COMPU PLAY

Just press the FM/AM button (or the TUNER button on the Remote Control) to turn on the Unit and start playing the most recent station tuned in.

- ☐ You can switch from any other sound source to the radio by pressing the FM/AM button (or the TUNER button on the Remote Control).

Tuning In a Station

Press the FM/AM button (or the TUNER button on the Remote Control) to turn on the radio. The Frequency of the previously selected channel appears on the display.

Switching between Frequency Bands

Press the FM/AM button.

Each time you press the button, the band alternates between FM and AM (MW/LW).

Selecting a radio station

- ☐ Select a frequency by adjusting the MULTI CONTROL stick up or down. The frequency changes in one step increments. "TUNED" appears on the display when a signal is found. This is called Manual Tuning
  The frequency increases when MULTI CONTROL stick is pressed upwards, and decreases when the MULTI CONTROL stick is pressed downwards
- ☐ If the MULTI CONTROL stick is pressed up or down continuously for a few seconds, the frequency changes continuously until a signal is found, then "TUNED" appears on the display This is called Auto Tuning

- ☐ Possible only after presetting stations.

Using the Unit

Select a preset channel by adjusting the MULTI CONTROL stick left or right.

Using the Remote Control

TUNER

1. **Press the TUNER button so that you can receive the most recent station tuned in.**
2. **Select the station by entering the preset number in the number keys of the Remote Control.**
   - ☐ Example: for channel 5, press 5. For channel 15, press +10 then 5. For channel 20, press +10, then 10. For channel 32, press +10 three times, then 2.

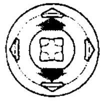
Presetting Stations

You can store up to 40 of your favourite radio stations (FM and AM (MW/LW)) in memory, giving you quick, easy access to the stations.

Note: In some cases, test frequencies have been already memorized for the tuner since the factory examined the tuner preset function before shipment. This is not a malfunction. You can preset the stations you want into memory by following the presetting method.

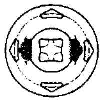
1 FM/AM

2



3 SET

4



5 SET

1. **Select a frequency band by pressing the FM/AM button.**
2. **Tune to a station by adjusting the MULTI CONTROL stick up or down**
3. **Press the SET button**
   On the display, "SET" will blink for 5 seconds
   - ☐ During these 5 seconds while "SET" is blinking, you can assign a channel number to the station and enter it into the memory.
4. **Select a preset number by adjusting the MULTI CONTROL stick left or right.**
5. **Press the SET button and the station will be assigned to the channel number showing on the display.**
   "MEMORY" appears in the display
   MEMORY
   - ☐ If a station has been previously stored using the same channel number, this will be erased and the newly selected station will be stored.
   - ☐ If "SET" in the display goes off, start again from step 3.
6. **Repeat steps 1 - 5 for each station you want to store in memory with a preset number**

CAUTION: If the Unit is unplugged or if a power failure occurs, the preset stations will be erased after a few days. If this happens, preset the station again.

To Change the FM Reception Mode

FM MODE

When an FM stereo broadcast is hard to receive or noisy, press the FM MODE button on the Remote Control so that the "AUTO" indicator goes off in the display. Reception improves, but there are no stereo effects. In this monaural mode, noise comes out while tuning in stations (since muting is also cancelled).

To restore the stereo effect, press the FM MODE button on the Remote Control so that the "AUTO" indicator lights up. In this stereo mode, no noise comes out while tuning in stations, and you can hear stereo sounds when a program is broadcast in stereo.

Receiving FM Stations with RDS

RDS (Radio Data System) is a broadcasting service which a growing number of FM stations are now providing. It allows the FM stations to send additional signals along with their regular programme signals. For example, the stations send their station names and information about what type of programme they broadcast, such as sports or music, etc.

When tuned to an FM station which provides the RDS service, the RDS indicator lights up, the station frequency (and then the station name if sent) is displayed.

One convenient RDS service is "Enhanced Other Networks (EON)". This allows the Unit to automatically switch to a programme type of your choice when one starts in your broadcast area.

☐ Not all FM stations provide RDS service, nor do all RDS stations provide the same services. If in doubt, check with local radio stations for details on RDS services in your area.

Note: RDS may not work correctly if the station to which you are tuned is not transmitting properly or if the signal strength is weak.

What Information RDS can Provide

CA-D651TR can use the following RDS service.

PS (Program Service name)
Identifies each station by a name.

TA (Traffic Announcement Identification)
Identifies that a traffic announcement is being broadcast in your area.

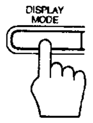
RT (Radio Text)
Allows the RDS station to send text messages that appear on the display of the unit.

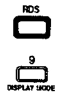
PTY (Programme Type)
Identifies the type of RDS programme. This allows you to locate a specific type of programme being broadcast.

The programme types are as follows:

TRAFFIC:	Traffic announcement
NEWS:	News
INFO:	Programmes on medical service, weather forecast, etc.
POP M:	Pop music
ROCK M:	Rock music
M.O.R. M	Middle-of-the-road music (usually called "easy listening")
LIGHT M:	Light music
CLASSICS:	Classics
OTHER M:	Other music
AFFAIRS:	Topical programme expanding on current news or affairs
SPORT:	Sports events
EDUCATE:	Educational programmes
DRAMA:	Radio plays
CULTURE:	Programmes on national or regional culture
SCIENCE:	Programmes on natural sciences and technology
VARIED:	Other programmes like comedies or ceremonies
NONE:	Undefined
ALARM:	Emergency broadcasts

EON (Enhanced Other Networks)
Provides information available on RDS stations other than the one which is being received.





Changing the Display

You can see RDS information on the display.
To view RDS information on the display, press the DISPLAY MODE button. (When using the Remote Control, press the DISPLAY MODE button after pressing the RDS button.)
Each time you press the button, the display changes to show the following information:

↓
PS (Programme Service):
Station names will be displayed
↓
PTY (Programme Type):
Types of broadcast programmes will be displayed.
↓
RT (Radio Text):
Text message sent by stations will be displayed
↓
Station Frequency:
Station frequencies.

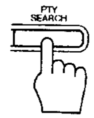
☐ While RDS information is being received from a station, "WAIT PS", "WAIT PTY", or "WAIT RT" may appear on the display.

Searching for Programmes by PTY codes

One of the advantages of the RDS service is that you can locate a particular kind of programme by specifying the PTY codes.

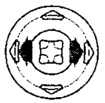
☐ The PTY Search function is applicable to preset stations only.

To search for a programme using the PTY codes, follow this procedure:
Using the Unit



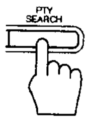
1. **Press the PTY SEARCH button.**
   "PTY" and "SEARCH" appear alternately on the display

   Note: If no adjustments are made for 5 seconds in PTY Search mode, the display reverts to the previous display. Perform the next step while "PTY" and "SEARCH" are being displayed.



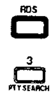
2. **Press the MULTI CONROL stick to the left or right to select a PTY.**
   The display changes with each press of the MULTI CONROL stick as shown below:

   Moving the MULTI CONTROL stick to the right →
   ↔ TRAFFIC ↔ NEWS ↔ INFO ↔ POP M ↔ ROCK M ↔ M.O.R. M ↔ LIGHT M ↔ CLASSICS ↔ OTHER M ↔ AFFAIRS ↔ SPORT ↔ EDUCATE ↔ DRAMA ↔ CULTURE ↔ SCIENCE ↔ VARIED ↔
   ← Moving the MULTI CONTROL stick to the left



3. **Press the PTY SEARCH button again.**
   While the search function is running, the selected programme type and "SEARCH" alternate on the display. The preset number also change.

Using the Remote Control



1. **Press the RDS button.**
2. **Press the PTY SEARCH button**
   "PTY" and "SEARCH" appear alternately on the display

   Note: If no adjustments are made for 5 seconds in PTY Search mode, the display reverts to the previous display. Perform the next step while "PTY" and "SEARCH" are being displayed.

6
PTY SELECT

3. Press the PTY SELECT button to choose a PTY.

☐ The programme type display changes with each press of the PTY SELECT button as shown below.

TRAFFIC → NEWS → INFO → POP M → ROCK M → M.O.R. M → LIGHT M → CLASSICS → OTHER M → AFFAIRS → SPORT → EDUCATE → DRAMA → CULTURE → SCIENCE → VARIED → (back to the beginning)

3
PTY SEARCH

4. Press the PTY SEARCH button again.

While the search function is running, the selected programme type and "SEARCH" alternate on the display. The preset number also change.

Once the station which is broadcasting the selected PTY (Programme Type) is located, searching will stop. Then the station name (if PS code is being sent) will be indicated and the broadcast will commence. The Display will stay blinking for 10 seconds from the end of the searching function. If you press the PTY SEARCH button again during this period, search for the same PTY (Programme Type) will restart.

The PTY Search function is completed when the indicated preset Number changes from blinking to continuously lit.

☐ If a station broadcasting a selected PTY(Program Type) cannot be found, "NOT" and "FOUND" are displayed alternately on the display after the Unit has searched through the preset numbers. The Unit will then return to the station to which it was tuned prior to the start of the PTY Search.

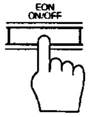
To cancel a PTY Search operation, use the MULTI CONROL stick to select another function

Note: PTY Search can be used even while AM (MW/LW) broadcasts are being received.

EON Function

With the EON (Enhanced Other Networks) code, the Unit can perform a standby reception which will enable you to obtain desired information which is available from other stations.

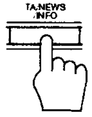
☐ "EON" will be displayed while receiving stations with an EON code
☐ EON Standby reception is applicable for preset stations only.
☐ You can set EON Standby reception regardless of types of receiving bands.



Setting EON Standby reception

1. Press the EON ON/OFF button.

[TA NEWS INFO], or the last EON information type selected, is displayed



2. Select information you want by pressing the TA/NEWS/INFO button.

TA Identifies that a traffic announcement is being broadcast in your area.
NEWS News
INFO: Programmes on medical service, weather forecast, etc

☐ With each pressing of the TA/NEWS/INFO button, indications will change as follows:

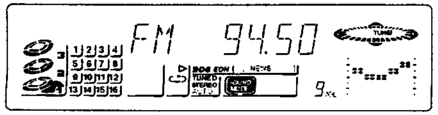
[TA] → [NEWS] → [INFO] →
[TA NEWS] → [NEWS INFO] → [TA INFO] →
[TA NEWS INFO] → (back to the beginning)

As soon as your selection is entered the Unit will go into EON Standby reception mode.

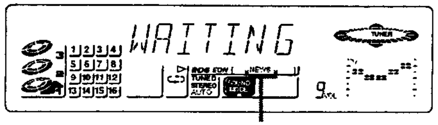
If you want to cancel the EON function, turn off the [TA NEWS INFO] indicator by pressing the EON ON/OFF button.

When this Unit carries out EON Standby reception, the indication will change as follows:

1. Waiting for EON Standby reception

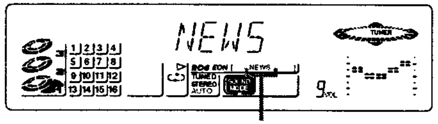


2. Preset stations are being searched for and while preparing to change the station, sound will be muted.



Blinking

3. The station will be changed and the programme type being received will appear on the display



Blinking

☐ When using the DISPLAY MODE button to change the display, use the appropriate setting for the type of display.

Notes:

- EON broadcasts of some stations may not be compatible with this Unit. In the case of an incompatible EON broadcast, "EON" will not appear on the display.
- While the Unit is receiving information for an EON code you have selected for EON Standby, you cannot use the following operations: MULTI CONTROL stick, TA/NEWS/INFO button or PTY SEARCH button. In addition, if a station transmits information for a programme type you have selected without sending the EON code, the EON Standby operation is still performed Therefore, you will not be able to use the operations listed above during this period
- If the reception is unsatisfactory for a station among the preset stations, "WAITING" appears on the display and the station is searched for again. If after searching through the channels five times, the broadcasting station cannot be found, "NOT" and "FOUND" are displayed alternately on the display. The Unit will then return to the station to which it was previously tuned

When broadcasting of the desired information has been completed, "EON END" will be indicated and the Unit will automatically go back to the station which had previously been tuned to.

☐ While receiving information on EON Standby reception, the station will not change to other stations even if the same information is available from them.
☐ If you cancel the EON function when in EON Standby reception mode by either pressing the EON ON/OFF button, the Unit will automatically return to the station which had been previously tuned-in.

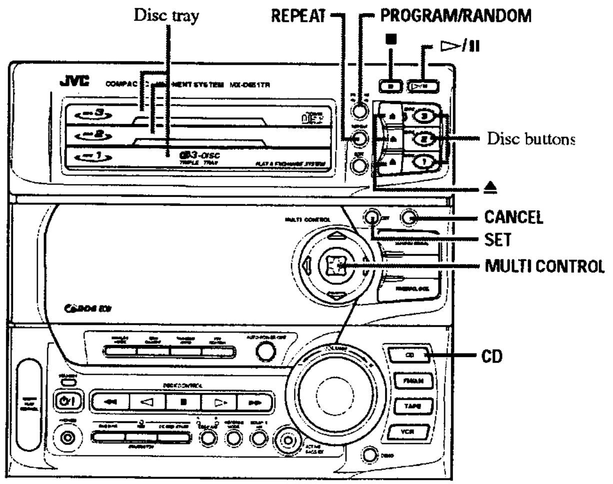
If the information you are waiting for is available from the current station, the indicator will blink.

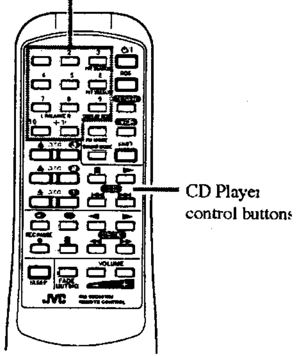
ALARM function

If an ALARM (Emergency) signal is received while receiving an EON code from a station, "ALARM" blinks on the display and the Unit automatically switches to the station broadcasting the ALARM signal.

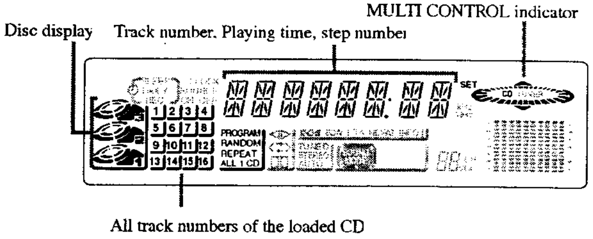
When an ALARM broadcast of PTY is being received from the currently tuned-in station, "ALARM" will blink on the display for your attention.

Using the CD Player

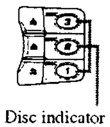




Display


MULTI CONTROL indicator
Disc display
Track number, Playing time, step number
PROGRAM
RANDOM
REPEAT
ALL 1CD
SET
CD
All track numbers of the loaded CD

When the CA-D651TR is being used, the display shows other items as well. However, we have only shown the items described in this section.



DISC indicator

Each of the Disc buttons acts as an indicator.
The indicator is off when the CD Player is checking that there is no disc in the disc tray for the corresponding disc number.
Pressing the ≜ button turns the indicator on.
During playback, the disc indicator for the disc being played flashes.

Disc marker

Disc display

A red marker lights on the disc display for the disc number you have selected. This disc display blinks while a CD is being played.
The centre of the disc display is not lit while CD Player is checking that there is no disc in the disc tray for the corresponding disc number.

The CA-D651TR's CD Player has an Automatic Changer with 3 disc trays. You can use Continuous, Random, Program or Repeat Play for the discs in DISC-1, DISC-2 and DISC-3. Repeat Play can repeat all the tracks on all the CD's, the tracks on one of the CD's or one track on one CD. There is also the Tray Lock function, which safely keeps discs in the trays.

Here are the basic things you need to know to play a CD and locate the different selections on it. Each selection is called a track, so when we are talking about locating a track, we are also talking about how you find a certain song or performance.

COMPU PLAY

The Quickest Way To Start a CD Is With the One Touch Operation

The power comes on, and operations are done automatically.

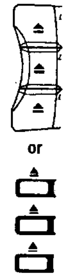
❑ Press the CD or ▷/II button (or the ▶ button on the Remote Control).
- If there is a CD in the disc tray of the selected (lit) disc number, playback continues from the track where it was interrupted.
- If there is no CD in any of the disc trays, the message "OPEN" appears in the display after a few seconds and the disc tray for the marked disc opens.

❑ Press a DISC button (1 to 3).
- If there is a CD in the disc tray for the disc number you have selected, playback begins from the first track of that disc. If there is no CD in the disc tray, the message "OPEN" appears in the display after a few seconds and the disc tray opens.

❑ Press the ≜ button.
- The power turns on, and the tray opens automatically.

Basics of Using the CD Player — Continuous Play

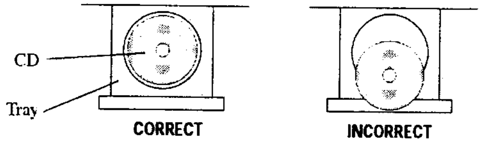
You can play the discs continuously in the DISC 1 to DISC 3 trays.



To Insert Discs

1. **Press the ≜ button on the left of the Disc button you want to insert the disc into.**
   The disc tray slides out automatically.
2. **Place a CD, with its label side up, onto the tray.**

ATTENTION: To avoid malfunctions when you play a CD, please set the CD in the right place at the centre of the tray.



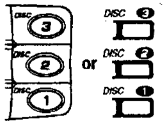
3. **Press the ≜ button to close the tray.**
4. **Repeat steps 1 to 3 to insert other discs into other trays.**
   - To continue putting discs into other trays, even if a tray is open, by pressing the ≜ button of another disc tray, the open tray will close automatically, and the new disc tray will slide out.

❑ To put an 8 cm CD into a tray, insert it so that it is aligned with the groove in the tray's centre.
❑ "OPEN" appears in the display when a tray opens, and "CLOSE" when a tray closes.
❑ If a tray is open when the CA-D651TR switches to Standby mode, the tray is closed automatically.

Note: When the CD Player is reading a disc, "- - - -" appears in the display. While this is being displayed, the ≜ button or DISC button cannot be used. Once the display changes from "- - - -" to another display, the ≜ button and DISC button can be used.

To Play a Disc

This function plays the disc in the Unit continuously.



1. **Prepare the discs.**
2. **Press the DISC button (1-3) of the disc you want to play.**
   The first track of the selected disc will begin playing
   When the selected disc finishes playing, the next disc will begin playing automatically
   When the last disc has finished playing, the Unit will stop automatically.

❑ When a DISC button is pressed while a tray is open, the open tray will close automatically and Continuous Play playback begins from the first track of the disc

To use Continuous Play from the first track of the disc selected by the disc marker, you do not need to press a DISC button (1-3), just press the ▷/II or CD button (or ► button on the Remote Control).

Playing order of discs

❑ When playback starts from DISC-1, the playing order is DISC-1 → DISC-2 → DISC-3. When DISC-3 has finished, the CD Player selects DISC-1 (the disc marker is on) and stops

❑ When playback starts from DISC-2, the playing order is DISC-2 → DISC-3 → DISC-1. When DISC-1 has finished, the CD Player selects DISC-2 (the disc marker is on) and stops

❑ When playback starts from DISC-3, the playing order is DISC-3 → DISC-1 → DISC-2. When DISC-2 has finished, the CD Player selects DISC-3 (the disc marker is on) and stops
- If any of the disc trays are empty, the CD Player skips that disc tray and continues through the remaining disc trays in the order shown above.

Note: If there is no CD in disc tray for the DISC button you pressed, the message "OPEN" appears in the display and the disc tray automatically opens. If there is no disc in the disc tray for the selected disc number, when the ▷/II or CD button (or the ► button on the Remote Control) is pressed, playback begins from the next disc.

To stop play the disc, press the ■ button.
To stop play and remove the disc, press the ▲ button for the disc being played.
To pause, press the ▷/II button. The Disc display will blink. (The Pause function cannot be used with the ► button on the Remote Control.)
To cancel pause, press the ▷/II button again (or press the ► button on the Remote Control). Play continues from the point where it was paused.

RESUME

When the ■ button is pressed during playback, and the source is changed, the track number is memorized even when the power is turned off. The next time the ▷/II or CD button (or the ► button on the Remote Control) is pressed, play resumes from the track where it was interrupted.

❑ To start playback from the first track, press the DISC button.

To Change Discs While Playing

You can replace a CD in a tray not being used, while another CD is playing.

1. **Press the ▲ button of the tray not being used.**
   The tray opens.
2. **Replace the disc in the tray.**
3. **Press the ▲ button to close the tray.**

To Select a Disc, Track or Passage Within a Track

Press the DISC button (1-3) for the disc tray containing the track you want to listen to.
Playback starts from the first track of the disc you selected.

❑ Example: for the third disc, press 3

To Select a Track

Using the Unit

Select a track by adjusting the MULTI CONTROL stick left or right.

❑ The MULTI CONTROL stick adjustments step through the tracks on the CD one track at a time
- Moving the MULTI CONTROL stick to the right selects the next track.
- Moving the MULTI CONTROL stick to the left select the previous track

❑ If the MULTI CONTROL stick is held down continuously, the CD Player skips through the tracks on the CD continuously in the selected direction

Using the Remote Control

Press the |◄◄ or ►►| button to select the track.

❑ Each time you briefly press and release the |◄◄ or ►► button, the track changes by one.
- Press and release the ►►| button to go ahead one track at a time.
- Press and release the |◄◄ button to go back one track at a time.

❑ Holding down the |◄◄ or ►►| button allows you to change tracks continuously.

To Select a Passage Within a Track

While a CD is playing, press the MULTI CONTROL stick up or downwards continuously.

❑ If the MULTI CONTROL stick is pressed upwards the CD is played forwards quickly, if the controller is press downwards the CD is played backwards quickly. Release the controller when the CD reaches the passage you want to hear

Note: You cannot perform these fast forwards or fast backwards operation with the remote control.

Locating a Track With the Remote Control Directly

Using the number keys on the Remote Control allows you to go directly to the beginning of any track.

1. **Press the DISC button (1-3) for the disc tray containing the track you want to listen to.**
   ❑ Example: for the third disc, press 3.
2. **Enter the number of the track you want to listen to with the number keys**
   The selected track starts playing
   ❑ Example: for track 5, press 5. For track 15, press +10 then 5. For track 20, press +10, then 10. For track 32, press +10 three times, then 2.

Programming the Playing Order of the Tracks

You can change the order in which the discs and tracks play, and select only the discs and tracks you want from among those loaded in the CD Player.

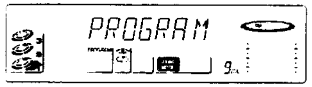
❑ You can program up to 32 steps in any desired order from among the discs in the player.

❑ You can only make or change a program when the CD Player is stopped

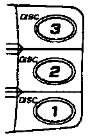
Using the Unit

PROGRAM
/RANDOM

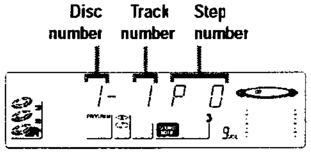
1. **Press the PROGRAM/RANDOM button.**
   The message "PROGRAM" appears on the display and the PROGRAM indicator comes on
   If you have already created a program, the last step of the previous program is displayed.



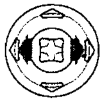
❑ The display changes with each press of the PROGRAM/RANDOM button, as shown below.
→ PROGRAM → RANDOM → Off (Continuous Play) → (back to the beginning)



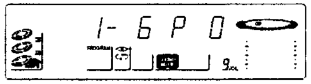
2. **Select a disc with the DISC buttons (1 to 3).**
The display changes to the Program Entry display and the disc number and track number sections blink for a few seconds.



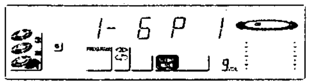
☐ While the display is blinking, perform the operations in steps 3 to 4. When the blinking display changes to the "PROGRAM" display, repeat the operations in steps 2 to 4.



3. **Select a track for the program by adjusting the MULTI CONTROL stick left or right.**
The track number appears on the display.



4. **Press the SET button.**
The blinking disc number and track number changes to a steady light, and the step number is displayed.



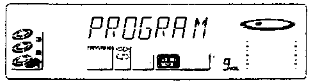
5. **Repeat steps 2 to 4 to select the other tracks for the program.**
☐ To select another track from the same disc, repeat the procedure from step 3.

6. **Press the ⊳/II or CD button.**
The Unit plays the tracks in the order you have programmed them.

Using the Remote Control

PROGRAM /RANDOM

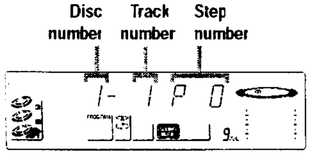
1. **Press the PROGRAM/RANDOM button on the Unit.**
The message "PROGRAM" appears in the display and the PROGRAM indicator comes on. If you have already created a program, the last step of the previous program is displayed.



☐ The display changes with each press of the PROGRAM/RANDOM button, as shown below.
→ **PROGRAM** → **RANDOM** → Off (Continuous Play) → (back to the beginning)

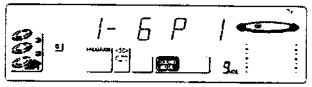
DISC 3
DISC 2
DISC 1

2. **Select a disc with the DISC buttons (1-3).**
The display changes to the Program Entry display and the disc number and track number sections blink for a few seconds.



☐ While the display is blinking, perform the operations in step 3. When the blinking display changes to the "PROGRAM" display, repeat the operations in steps 2 to 3.

3. **Press the number keys (1 to 10 and +10) to select the track to program.**
☐ Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10 then 10. For track 32, press +10 three times, then 2.
The blinking disc number and track number changes to a steady light, and the step number is displayed.



4. **Repeat setps 2 to 3 to select the other tracks for the program.**

5. **Press the ► button.**
The Unit plays the tracks in the order you have programmed them.

☐ If you try to program a 33rd step, the CA-D651TR lets you know that the program is full by displaying the message "FULL" on the display.
☐ If you try to program an disc tray that is empty, or a track number that does not exist on a disc (for example, selecting track 14 on a disc that only has 12 tracks), the selected disc or track are skipped when the program is played.
☐ You can skip to a particular program step during program play. To do this from the unit, move the MULTI CONTROL stick left or right, to do so from the remote control press the ⏮ or ⏭ buttons.
☐ To play the programmed tracks over and over, press the REPEAT button. The Repeat mode indicators light up in sequence with each press of the REPEAT button.

To stop playing, press the ■ button.
To delete all the tracks in a program, keep pressing the CANCEL button on the Unit until all the tracks in the program have been deleted, or press the ⏏ button for each disc in the program.
To exit Program Mode, press the PROGRAM/RANDOM button twice to change to Continuous Play mode.

To Check the Program

While the CD Player is stopped, use the ⏮ or ►► buttons on the remote control to check the contents of the program.
Each time you press the ⏭ button, the program contents are shown on the display in the programmed order. Pressing the ⏮ button displays the previous step in the program.

To Modify the Program

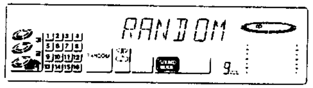
Modify the contents of a program while the CD Player is stopped.
Press the CANCEL button on the Unit, the last track in the program is deleted.
Each time you press the button, the last track listed in the program is deleted from the program.
To add a track to the program, follwo the procedure above (on either the Unit or the Remote Control). The news tracks are added to the end of the program.

Random Play

PROGRAM /RANDOM

The tracks will play in no special order when you use this mode.

1. **Press the PROGRAM/RANDOM button while the CD Player is stopped to change to the Random Mode display.**



☐ The display changes with each press of the PROGRAM/RANDOM button, as shown below.
→ **PROGRAM** → **RANDOM** → Off (Continuous Play) → (back to the beginning)

2. **Press the ⊳/II or CD button (or the ► button on the Remote Control).**
The tracks are played in random order.
When all of the tracks have been played, the CD Player stops.

Note: Press the DISC buttons (1-3), or the number keys, to cancel Random play and begin playback in Continuous Play mode.

- ❑ Press the REPEAT button before or during random play to instruct the CA-D651TR to continue with a different random track selection after the last selection is played.

To cancel random play, press the ■ button, then press the PROGRAM/RANDOM button to select another mode.

Repeating a Selection or the Discs

You can have all the discs, the program or the individual selection currently playing repeat as many times as you like.

Press the REPEAT button on the CA-D651TR.
The display changes with each press of the button, as shown below.
→ **REPEAT ALL** → **REPEAT 1 CD** → **REPEAT 1** → blank display → (back to the beginning)

REPEAT ALL: Repeats all the tracks on the CD's in the CD Player, or all the tracks in the program.
REPEAT 1 CD: Repeats all the tracks on one CD.
REPEAT 1: Repeats one track on a CD.

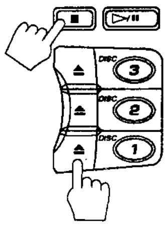
- ❑ "REPEAT ALL" and "REPEAT 1" remain on the display even when you change the play mode
- ❑ The three Repeat Modes above can be selected during Continuous Play, however, during Program Play and Random Play, you can only select REPEAT ALL or REPEAT 1

To exit Repeat Mode, press the REPEAT button until the Repeat mode indicator on the display goes out.

Tray Lock Function

In order to safely keep the discs in the CD Player, the three trays can be electronically locked in a single operation.
When the electronic lock is on, the trays cannot be opened even if the ≜ button is pressed.
This function can only be accessed by using the buttons on the Unit itself.

Locking the Electronic Lock



1. **Put the CA-D651TR's power into STANDBY mode.**
2. **While pressing the ■ button, press the ≜ button for DISC 1's tray on the Unit.**
   "LOCKED" appears on the display to let you know that the trays have been locked.

   LOCKED

   When the CD Player trays are locked, pressing the ≜ buttons displays the message "LOCKED" on the display and the trays do not open. But, the ≜ button can be used to automatically turn on the power.

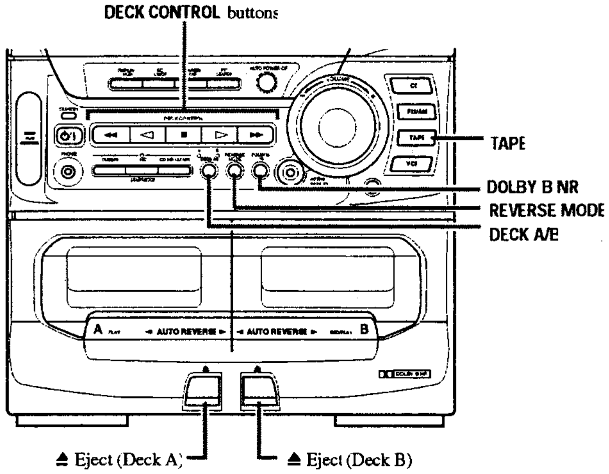
Unlocking the Electronic Lock

1. **Put the CA-D651TR's power into STANDBY mode.**
2. **While pressing the ■ button, press the ≜ button for DISC 1's tray on the Unit.**
   When the unlock operation is done, "UNLOCKED" appears in the display to show that the lock has been taken off.

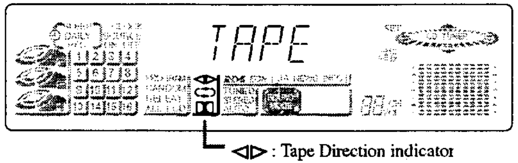
   UNLOCKED

   The trays can now be opened by pressing the ≜ buttons.
   The ≜ button can also be used to automatically turn on the power.

Using the Cassette Deck (Listening to a Tape)

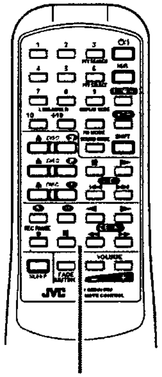


Display



◁▷ : Tape Direction indicator
⮂ : Reverse Mode indicator
DD : DOLBY B NR indicator

Tape Direction Indicator on the Display
The Tape Direction indicator tells you which direction the selected tape deck will use for playback.
During playback, the direction indicator blinks slowly.
During fast left or fast right, the indicator blinks quickly.
During Music Scan mode, the direction indicator alternates between blinking slowly and quickly repeatedly.



When the CA-D651TR is being used, the display shows other items as well. However, we have only shown the items described in this section.

The Cassette Deck allows you to play, record and dub audio tapes.

- ❑ Most tapes are now recorded with the Dolby NR system, so first check which type of the Dolby NR system has been used on the tape. Only Dolby B NR is incorporated into the CA-D651TR
- ❑ With Automatic Tape Detection, you can listen to type I or II tapes without changing any settings

> The use of tapes longer than 120 minutes is not recommended, since characteristic deterioration may occur and these tapes easily jam in the pinch-rollers and the capstans

One Touch Play

- ☐ Press the TAPE button.
  The power comes on and "TAPE" lights up on the display . If there is a tape in the deck corresponding to the Deck Indicator DECK A/B, that tape starts to playback. If there is no tape in the deck corresponding to the Deck Indicator, the CA-D651TR automatically turns on the power and displays "TAPE" then the message "NO TAPE" and waits for you to insert a tape or select another function.
- ☐ Press the ◁ or ▷ button (or the ◄ or ► button on the Remote Control).
  The power comes on and "TAPE" appears in the display. When a tape is already in the tape deck, the tape is played in the direction of the button pressed. If there is no tape in the deck corresponding to the Deck Indicator, the CA-D651TR automatically turns on the power and displays "TAPE" then the message "NO TAPE" and waits for you to insert a tape or select another function.

Regular Play

If the power is already on, you can use this basic procedure:

1. **Press the ▲ button for the deck you want to use.**
2. **When the cassette holder opens, put the cassette in, with the exposed part of the tape down, toward the base of the CA-D651TR.**
   - ☐ If the cassette holder does not open, turn the Unit off, then back on and press the ▲ button again.
3. **Close the holder gently.**
   When both Deck A and Deck B contain a tape, the last deck to have a tape inserted is selected. To change the selected deck, press the DECK A/B button.
   When using the Remote Control, press the A or B button.
4. **Press the ◁ or ▷ button (or ◄ or ► button on the Remote Control).**
   The tape is played in the direction of the button pressed for the selected deck.
   - ☐ The Cassette Deck automatically stops when one side of a tape has finished playing.

To stop playing, press the ■ button.
To remove the tape, stop the tape, and press the ▲ button.
To change deck while playing a tape, press the ◁ or ▷ button after pressing the DECK A/B button on the Unit or press the ◄ or ► button after pressing the A or B button on the Remote Control.

Fast Left and Fast Right

- ☐ While the tape is stopped, press the ◄◄ button and the tape will wind rapidly onto the left side of the cassette without playing.
- ☐ While the tape is stopped, press the ►► button and the tape will wind rapidly onto the right side of the cassette without playing.

Note: Deck A and Deck B cannot be used for playback at the same time.

Music Scan

To find the beginning of a music track during play, use the Music Scan function. Music Scan searches for blank portions that usually separate selections, then plays the next selection.

To Find the Beginning of the Current Selection

Press the ◄◄ or ►► button during play.

- ☐ Make sure that you press the ◄◄ or ►► button in the opposite direction to that in which the tape is playing. Searching stops at the beginning of the current selection, and the current selection starts automatically

To Find the Beginning of the Next Selection

Press the ◄◄ or ►► button during play.

- ☐ Make sure that you press the ◄◄ or ►► button in the same direction as that in which the tape is playing. Searching stops at the beginning of the next selection, and the next selection starts automatically

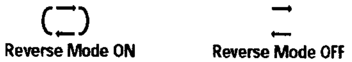
Music Scan works by detecting a 4-second long blank at the beginning of each selection, so it won't work well if your tape has:

- No blank at the beginning of a selection
- Noise (often caused by much use or poor quality dubbing) which fills the blank with noise
- Long, very soft passages or pauses in a selection. The scan will detect these as 4-second long blanks. If this happens, just scan again until you reach the selection you want.

Other Useful Features of the Cassette Deck

REVERSE MODE

- ☐ Use **Reverse Mode** to make the tape automatically reverse at the end of a side and start playing the other side. Press the REVERSE MODE button to change from Reverse Mode on to Reverse Mode off, or from off to on.

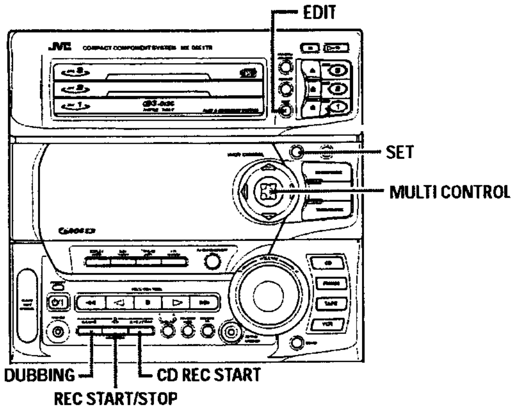


- ☐ **Continuous Play:** With the Reverse Mode indicator on, when tape playback in the ◄ direction finishes, the Unit always checks to see if a tape is in the other deck. If there is, it automatically starts playing. This Continuous Play function works regardless of which deck starts first.

- ☐ Press the DOLBY B NR button to switch Dolby B Noise Reduction on (the indicator lights up) or off (the indicator goes off). If a tape is recorded with the Dolby B NR system, playing it back with the Dolby NR on will reduce tape noise and improve the clarity of the sound.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

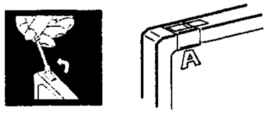
Using the Cassette Deck (Recording)



Recording onto a cassette from any of the sound sources is simple. Just place a tape in Deck B, have the source ready, make one or two settings, and you're ready to record. For each source the procedure is a little different and now we'll explain just what to do for each one. If you forget, just come back to the section which has the specific procedures you need. But first, here are a few things to make your recordings better.

Things To Know Before You Start Recording

- ❑ **It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.**
- ❑ Press the DOLBY B NR button — the indicator lights up — to reduce tape hiss, except when dubbing tapes, since Dolby NR is inactive in Dubbing Mode regardless of the setting of DOLBY B NR. The dubbed tape automatically contains the same processing as the source tape.
- ❑ When you want to record onto both sides of a tape, you can set Reverse mode on to do so. However, recording automatically stops after recording in the ◄ direction in Reverse mode. Therefore, make sure that the tape direction is ► when recording with Reverse mode on.
- ❑ The recording level, which is the volume at which the new tape is being made, is automatically set correctly, so it is not affected by the VOLUME control on the CA-D651TR. Thus, during recording you can adjust the sound you are actually listening to without affecting the recording level.
- ❑ Two small tabs on the back of the cassette tape, one for side A and one for side B, can be removed to prevent accidental erasure or re-recording. To record on a cassette with the tabs removed, you must cover the holes with adhesive tape first. However, when a type II tape is used, only cover part of the hole as shown, since the other part of the hole is used to detect the tape type



- ❑ When recording, you can hear Sound Mode effects through the speakers or headphones. However, the sound is recorded without Sound Mode effects.
- ❑ Type I and Type II tapes can be used for recording.

Note: At the start and end of cassette tapes, there is leader tape which cannot be recorded onto. Depending on the recording source, the first part of the recording may be missing because of the leader. When recording CDs or radio broadcasts, to get the beginning of the recording on the tape, first wind on the leader before beginning recording.

CAUTION: If recordings you have made have excessive noise or static, the Unit may be too close to a TV which was on during the recording. Either turn off the TV or increase the distance between the TV and the CA-D651TR.

Standard Recording

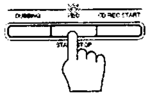
This is the basic method for recording any source. The CA-D651TR also has special ways for recording CD to tape, and tape to tape, which save you time and effort, as well as give you some special effects. However, when you need to add a selection to a tape you have made, or are combining selections from several sources on one tape, use the method described below; just substitute the source you want into this procedure, such as a tape in Deck A, a CD, or the Tuner. You can also record from VCR with this procedure.

To Record Any Sound Source To Tape

Follow these steps to record from any sound source onto a tape in Deck B.

Using the Unit

1. **Insert a blank or erasable tape into Deck B.**
2. **Press the REVERSE MODE button if you want to record on both sides of the tape.**
   Reverse Mode comes on.
   - ❑ When using Reverse Mode, insert the tape so that it will be recorded in the forwards ► direction.
3. **Check the recording direction for the tape.**
   Check that the Tape Direction indicator is the same as that for the tape in the tape deck. If the directions are different, press the ■ button after pressing the ◁ or ▷ button to set the tape direction.
   - ❑ When using Reverse Mode to record both sides of a tape, check that the Tape Direction indicator is in the forwards ► direction. If the direction indicator is not in the forwards ► direction, press the ▷ button then press the ■ button.
4. **Prepare the source, by, for example, tuning in a radio station, loading CDs, or turning on connected equipment.**

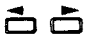


5. **Press the REC START/STOP button.**
   The Recording indicator light comes on and the CA-D651TR begins recording

Using the Remote Control

1. **Insert a blank or erasable tape into Deck B.**

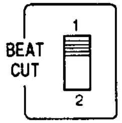
2. **Press the REC PAUSE button**
   The Recording indicator light comes on
3. **Press the REVERSE MODE button on the Unit if you want to record on both sides of the tape.**
   Reverse Mode comes on.
   - ❑ When using Reverse Mode, insert the tape so that it will be recorded in the forwards ► direction.
4. **Prepare the source by, for example, tuning in a radio station, loading CDs, or turning on connected equipment.**



5. **Press the ◄ or ► button.**
   Recording starts in the direction of the button pressed
   - ❑ When using Reverse Mode to record both sides of a tape, press the ► button.

CAUTION: Operations other than using AUTO POWER OFF, the SLEEP timer or changing the CD for the other disc trays, may cause the recording source to be changed.

If you are recording an AM (MW/LW) broadcast and you hear interference, move BEAT CUT switch on the back panel from position 1 (the normal mode) to position 2.



Notes for using Reverse Mode for recording

When recording in Reverse Mode, the CA-D651TR automatically stops when it reaches the end of the reverse ◄ direction. To record on both sides of a tape, make sure that the recording direction for the tape inserted into Deck B is forwards ►, and that the Tape Direction indicator is also forwards ►, before you start recording.

To Pause at Any Time During the Recording Process

Press the REC PAUSE button on the Remote Control. Then press either the ◄ or ► button on the Remote Control or REC START/STOP button on the Unit to restart recording.

To Stop at Any Time During the Recording Process

Press the REC START/STOP button on the Unit again, or press the ■ button.

CD Direct Recording

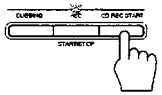
Everything on the CD goes onto the tape in the order it is on the CD, or according to the order you have set in a program.

1. Prepare CDs. (See page 19.)

Check that the CD Player is not playing a CD.

2. Insert a cassette in Deck B to record on.

☐ When you want to record on both sides of a tape, press the REVERSE MODE to turn Reverse Mode on. Check that the recording direction for the tape and the Tape Direction indicator are correct. (See "Notes for using Reverse Mode for recording" earlier on this page.)



3. Press the CD REC START button.

"CD REC" is displayed on the display then the Unit plays the CD and starts recording.

At the end of the tape, the CA-D651TR automatically goes back to the beginning of the last selection and re-records it, this time gently fading out at the end. If you selected Reverse Mode, "TAPE SIDE-B STANDBY" scrolls through the display then the reverse side starts with the last selection of the first side. The last selection of the first side will fade out at the end. (A 10 second blank is created at the beginning of the reverse side.)

When the recording is finished, the message "CD REC FINISHED" scrolls by on the display. The CD Player and Cassette Deck stop.

To Stop at Any Time During the Recording Process

Press the REC START/STOP button or the ■ button on the Cassette Deck or CD Player (or the ■ button on the Remote Control).

Notes:

- When the Auto Power Off function is turned on while recording a CD, the power will automatically turn off when the CD finishes. Be careful when the Auto Power Off function is turned on while recording a CD in Repeat Mode, as repeat will be cancelled and the power will automatically turn off with Repeat Mode ("REPEAT ALL", "REPEAT 1 CD", or "REPEAT 1"). (Page 11)
- When making SLEEP timer settings while doing CD Direct recording, set the time so that there is enough leeway to finish the recording before the power goes off. If the time is set to about the length of the CD, the power may go off before recording finishes.

For CD Direct Recording using more than one disc, use a blank tape. If you use a prerecorded tape, prerecorded material may not be erased between newly-recorded tracks.

Auto Edit Recording

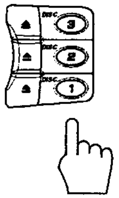
Using Auto Edit, you can record the CD tracks to fit the tape, so a selection isn't cut off. Auto Edit is one of the best ways to copy all of a CD onto a tape.
Auto Edit programs the CD tracks in numerical order. To prevent the end of the last track on the front side from being cut off, the last track on the front side is selected to fit on the remaining tape length.

1. Prepare CDs. (See page 19.)

2. Press the EDIT button on the Unit.

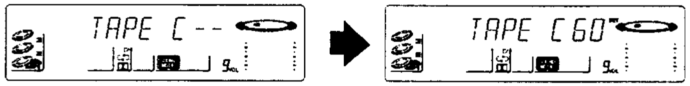
"DISC-" appears in the display.

DISC -



3. Press the DISC button for the disc you want to record.

After "TAPE C - -" appears on the display, the optimum tape length for the disc you want to record is displayed.



☐ You can select a different length of tape, depending on the actual size of the tape you are using, from eleven possibilities programmed into the CA-D651TR: 40, 46, 50, 54, 60, 64, 70, 74, 80, 84, 90. Select the tape length that corresponds to the length of tape you are using, or the nearest length to it, by adjusting the MULTI CONTROL stick left or right.

- If you pick a tape length shorter than the total playing time of the CD, the last tracks on both sides of the tape will be faded out as the tape ends.

4. Press the SET button.

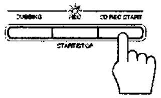
The tracks to be recorded on side B of the tape appear on the display.

☐ To display the tracks that will be recorded on side A of the tape, press the SET button again. The Unit switches between side A and side B with each press of the SET button.

☐ To check the tracks that will be recorded, press the ◄◄ or ►► buttons on the Remote Control.

5. Insert a cassette in Deck B to record on.

When you want to record on both sides of a tape, press the REVERSE MODE button to turn Reverse mode on.



6. Press the CD REC START button.

The Unit plays the CD and starts recording. If the tape has not been rewound, the Unit rewinds the tape before starting to record the CD.

When the tape is ready, to prevent the start of a track being cut, the CA-D651TR creates a blank period of 10 seconds before it starts to record the CD. While a blank period is being created, "TAPE SIDE-A STANDBY" scrolls through the display. (The CA-D651TR also creates a 10 second blank period at the start of side B of the tape. While a blank period is being created, "TAPE SIDE-B STANDBY" scrolls through the display.)

When the recording is finished, the message "CD REC FINISHED" scrolls by on the display. The CD Player and Cassette Deck stop.

To stop at any time while recording, press the ■ button (CD control or Cassette Deck control) or the REC START/STOP button. If you press the CD control ■ button, the Cassette Deck creates a four second blank space after the CD Player stops. If you press any other button to stop the recording, the CD Player and Cassette Deck stop at the same time.

To cancel Auto Edit, press the ▲ button for disc number being recorded, or press the PROGRAM/RANDOM button while the CD Player is stopped.

Note: When making SLEEP timer settings while doing Auto Edit recording, set the time so that there is enough leeway to finish the recording before the power goes off. If the time is set to about the length of the CD, the power may go off before recording finishes.

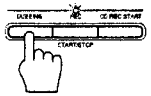
Tape to Tape Recording (Dubbing)

Recording from one tape to another is called dubbing.
You can dub tapes simply, with just a single button.

- ☐ When dubbing tapes, make sure that the playback direction of Deck A and Deck B are the same.
- ☐ When you want to record both sides of a tape, press the REVERSE MODE button to turn Reverse mode on.
- ☐ It is preferable that the type of tape (Type I or Type II) you record from be the same as the type you record onto.

How to Use the DUBBING Button

1. **Insert the source cassette you want to copy from into Deck A for playback.**
2. **Insert the blank or erasable cassette you want to copy onto in to Deck B for recording.**

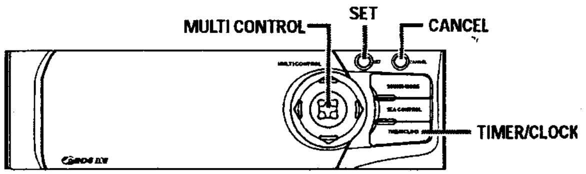


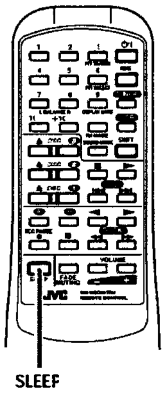
3. **Press the DUBBING button.**
   Deck A and Deck B will start simultaneously.

To stop dubbing, press the ■ button or REC START/STOP button.

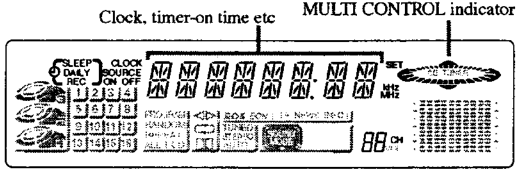
- ☐ Dolby NR is inactive in dubbing mode regardless of the setting of DOLBY B NR. The dubbed tape automatically contains the same processing as the source tape.
- ☐ When doing dubbing with the DUBBING button, you can hear Sound Mode effects through the speakers or headphones. However, the sound is dubbed without Sound Mode effects.

Using the Timers





Display

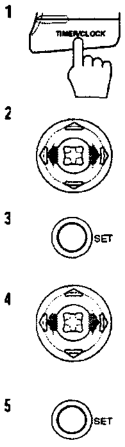


When the CA-D651TR is being used, the display shows other items as well. However, we have only shown the items described in this section.

The timers lets you control recording and listening functions automatically.
Three types of timers are available:

- ☐ **DAILY Timer** — Use this timer to set wake up everyday to music from any source, instead of an alarm clock.
- ☐ **REC (Recording) Timer** — Unattended recording of radio broadcasts. You can set the starting time and length of the recording.
- ☐ **SLEEP Timer** — Fall asleep and have your CA-D651TR turn off automatically after a certain length of time.

Setting the Clock



The timers depend on the clock: the clock must be right for the timers to work as you expect.
You can set the clock whether the Unit is on or off.
Note that the clock must be set, or the timers cannot be set.

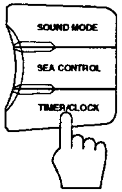
1. **Press the TIMER/CLOCK button.**
   The "CLOCK" indicator and the hour digits blink on the display.
2. **Set the hour by adjusting the MULTI CONTROL stick left or right.**
   Adjust the MULTI CONTROL stick to the right to advance the hour setting, adjust it to the left to decrease the setting. Press the MULTI CONTROL stick continuously to increase or decrease the hour setting rapidly.
3. **Press the SET button.**
   The minute digits blink on the display.
4. **Set the minute by adjusting the MULTI CONTROL stick left or right.**
   Adjust the MULTI CONTROL stick to the right to advance the minute setting, adjust it to the left to decrease the setting. Press the MULTI CONTROL stick continuously to increase or decrease the minute setting rapidly in 10 minute steps.
5. **Press the SET button.**
   "CLOCK OK" appears on the display, and the clock starts at zero seconds from the set time.

CAUTION: If there is a power failure, the clock loses its setting. The display shows "0:00", and the clock must be reset.

Setting the DAILY Timer

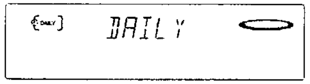
With this timer you can wake up to music from a CD, tape, your favourite radio program, or other source.

❑ You can set the DAILY Timer whether the Unit is on or off



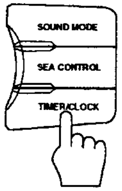
Procedure For Setting the DAILY Timer

1. Press the TIMER/CLOCK button so that "DAILY Timer" appears in the display.
The message "DAILY" blinks and the DAILY indicator light blinks on the display

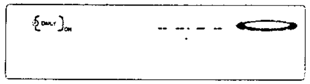


❑ The display changes with each press of the button, as shown below.
DAILY (blinks) → **ON TIME** (blinks) → **REC** (blinks) → **ON TIME** (blinks) → **CLOCK** (blinks) (Clock setting mode) → original display before the TIMER/CLOCK button was pressed → (back to the beginning)

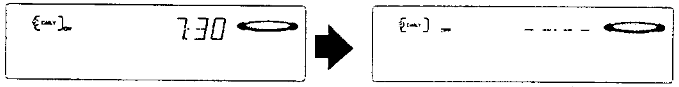
Note: If the clock has not been set, even if the TIMER/CLOCK button is pressed you cannot select the DAILY Timer.



2. Press the TIMER/CLOCK button again.
The display changes to the On Time display.

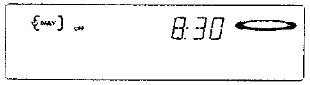


3. Set the time you want the Unit to turn on.
Set the time by adjusting the MULTI CONTROL stick left or right in the same way you set the time for the clock. Press the SET button to set the on time.



The "OFF time" hour setting starts to blink after the "ON time" minute setting is set.

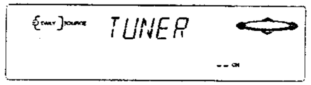
4. Set the time you want the Unit to turn off.
Set the time by adjusting the MULTI CONTROL stick left or right in the same way you set the time for the clock. Press the SET button to set the off time.
❑ When the off time has been set, the display changes to the source selection display.



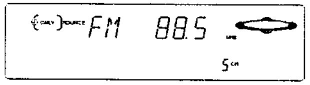
5. Select the source you want to listen to.

To use the Tuner as the source:

1. Adjust the MULTI CONTROL stick left or right until "TUNER" blinks in the display.



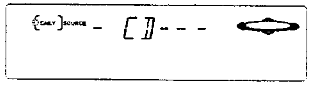
2. Adjust the MULTI CONTROL stick up or down to select the preset channel you want to listen to. (possible only after presetting stations.)



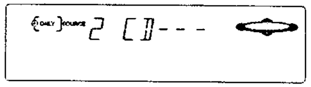
3. Press the SET button.

To use a CD as the source:

1. Adjust the MULTI CONTROL stick left or right until "- CD - - -" blinks in the display.

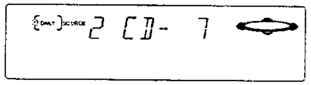


2. Adjust the MULTI CONTROL stick up or down to select the disc tray containing the CD you want to play.



3. Press the SET button.
If you press the SET button without selecting a disc, the last disc played by the CA-D651TR will be used.

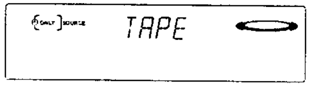
4. Adjust the MULTI CONTROL stick up or down to the select the starting track of the CD. You can only select upto 20 tracks.



5. Press the SET button.
If you press the SET button without selecting a track, playback will start from the first track on the CD.

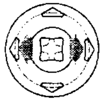
To use a Cassette Deck as the source:

1. Adjust the MULTI CONTROL stick left or right until "TAPE" blinks in the display.

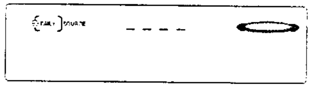


2. Press the SET button.

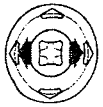
To use another source:
Use this to select a radio station that has not been preset.



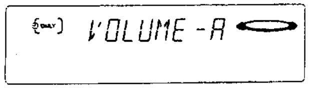
1. Adjust the MULTI CONTROL stick left or right until "- - - -" blinks in the display.



2. Press the SET button.
The last source used is selected.



6. **Setting the Volume Level.**
   Adjust the MULTI CONTROL stick left or right to set the volume level.



VOLUME - A: Sets the volume level to 10.
VOLUME - B: Sets the volume level to 15.
VOLUME - C: Sets the volume level to 20.
VOLUME - -: Sets the volume to the last volume setting used.

7. **Press the SET button.**
   The "DAILY" indicator changes from a blinking display to a steady display. The ON TIME, OFF TIME, PLAYBACK SOURCE (including the disc number and track number if a CD source is selected) are displayed then the display reverts to the previous display, before the Timer was set.
   Turn the power off if you made the timer settings with the power turned on.

❑ A few seconds before the start for the timer, the CA-D651TR automatically turns on the power, and the "DAILY TIMER" blinks on the display. When the set time is reached, playback starts using the selected source. After the finish time for the timer is reached, the power is automatically turned off again.
❑ If a button is pressed when the DAILY Timer is operating, playback continues but the timer is cancelled.

Before Turning Off the Unit
❑ If the source is a CD, make sure that there is a CD in the selected disc number.
❑ If the source is a tape:
  - The tape in the deck corresponding to the Deck Indicator mark is played. Make sure that there is a tape in the selected Cassette Deck.
  - Check that the tape direction is correct. This is important especially when Reverse Mode is off.
  - Set Reverse Mode on if you want to play both sides of the tape.
❑ Select the Sound Mode if you want to listen using a Sound Mode effect.

To change the DAILY Timer setting
To change the settings for the DAILY Timer, repeat the setting procedure from the beginning.

Turning the DAILY Timer On and Off

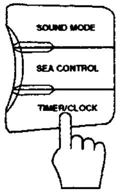
Once the DAILY Timer has been set it will be activated at the same time every day until the setting is turned off.
To turn the DAILY Timer off, press the TIMER/CLOCK button until "DAILY" appears in the display. Press the CANCEL button. "OFF" appears in the display and the DAILY indicator goes out.
To turn the DAILY TIMER on again, press the TIMER/CLOCK button until "DAILY" appears in the display, then press the SET button. The Timer ON TIME, OFF TIME, PLAYBACK SOURCE (including the disc number and track number if a CD source is selected) are displayed on the display.

CAUTION: If the CA-D651TR is unplugged, or a power failure occurs, the timer setting will be erased in a few days. If the settings are erased in this way, reset the timer settings.

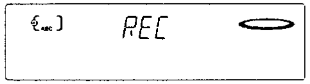
Setting the REC (Recording) Timer

With the Recording Timer you can make a tape of a radio broadcast automatically whether or not you are home. For the timer to work correctly, you need to make sure of the following in addition to setting the time for the Tuner and Cassette Deck to come on:
❑ You can set the REC Timer whether the Unit is on or off.
❑ The tape you want to record onto must be in Deck B

Procedure for Setting the REC Timer

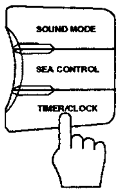


1. **Press the TIMER/CLOCK button so that "REC Timer" appears in the display.**
   The message "REC" blinks and the REC indicator light blinks on the display.

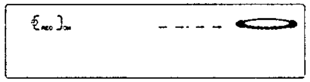


❑ The display changes with each press of the button, as shown below.
DAILY (blinks) → **ON TIME** (blinks) → **REC** (blinks) → **ON TIME** (blinks) → **CLOCK** (blinks) (Clock setting mode) → original display before the TIMER/CLOCK button was pressed → (back to the beginning)

Note: If the clock has not been set, even if the TIMER/CLOCK button is pressed you cannot select the REC Timer.



2. **Press the TIMER/CLOCK button again.**
   The display changes to the On Time display.



3. **Set the time you want the Unit to be turned on**
   Set the time by adjusting the MULTI CONTROL stick left or right in the same way you set the time for the clock. Press the SET button to set the on time
4. **Set the time you want the Unit to be turned off.**
   Set the time by adjusting the MULTI CONTROL stick left or right in the same way you set the time for the clock. Press the SET button to set the off time.
5. **Select the radio station you want to record.**
   Set the radio station you want to record by adjusting the MULTI CONTROL stick up or down.

6. **Press the SET button.**
   The "REC" indicator changes from a blinking display to a steady display. The ON TIME, OFF TIME, and preset channel number are displayed then the display reverts to the previous display, before the Timer was set.
   Turn the power off if you made the timer settings with the power turned on.

❑ A few seconds before the start time for the recording, the CA-D651TR automatically turns on the power, and "REC TIMER" blinks on the display. When the start time is reached, recording starts using the selected source. After the finish time for the recording is reached, the power is automatically turned off again
❑ If a button is pressed when the REC Timer is operating, recording continues but the timer is cancelled

Before the Timer Starts
❑ Check that tape direction is correct. This is important especially when Reverse Mode is off.
❑ Set Reverse Mode on if you want to record on both sides of the tape
❑ The VOLUME control is automatically set to 0 when REC Timer is recording

It is very easy, and can be very disappointing, to forget to put in a tape, or to accidentally leave a tape in Deck B you don't want recorded over. Although this happens to almost everyone at one time or another, we hope it won't happen to you!

To Change the Recording Timer Setting
To change the settings for the REC Timer, repeat the setting procedure from the beginning.

Turning the REC Timer On and Off

Once the REC Timer has been used to record a source, the setting is maintained but the Timer is set to OFF.

To turn the REC Timer off before the timer starts, press the TIMER/CLOCK button until "REC" appears in the display, then press the CANCEL button. "OFF" appears in the display and the REC indicator goes out.

To record at the same time again, press the TIMER/CLOCK button until "REC" appears in the display, then press the SET button. The ON TIME, OFF TIME, channel frequency, and preset channel number are displayed then the display reverts to the previous display, before the Timer was set.

CAUTION: If the CA-D651TR is unplugged, or a power failure occurs, the timer setting will be erased in a few days. If the settings are erased in this way, reset the timer settings.

Setting the SLEEP Timer

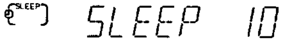
Use the Sleep Timer to turn the Unit off after a certain number of minutes when it is playing. By setting this timer, you can fall asleep to music and know your Unit will turn off by itself rather than play all night.

❑ You can only set the Sleep Timer when the Unit is on and a source is playing.

To set the SLEEP Timer, follow this procedure:

SLEEP

1. **With the CA-D651TR on and a source playing, press the SLEEP button on the Remote Control.**
   The message "SLEEP" appears on the display.



2. **Set the length of time you want the source to play before shutting off.**
   ❑ Each time you press this button while the "SLEEP" indicator is blinking, it changes the number of minutes shown on the display in this sequence:

→ **10** → **20** → **30** → **60** → **90** → **120** → Cancelled → (back to the beginning)

When the number of minutes you want shows on the display, just wait 5 seconds until the indicator stops blinking, and is lighted steadily.
The Unit is now set to turn off after the number of minutes you set.

To Change the SLEEP Timer Setting
Press the SLEEP button until the number of minutes you want appears on the display.
To Cancel the SLEEP Timer Setting
Press the SLEEP button until the "SLEEP" indicator goes off on the display.
Turning off the Unit also cancels the SLEEP Timer.

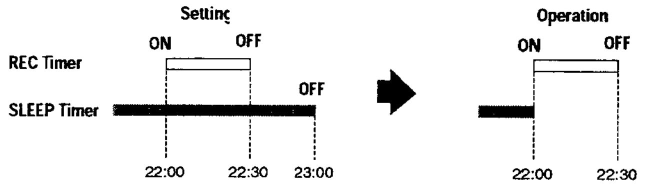
Timer Priority

Since each timer can be set independently, you may wonder what happens if the settings overlap. Here are the priorities for each timer:

❑ The REC Timer always has priority. This means that
  - If another timer is set to come on during a time when the REC Timer is operating, the other timer just won't come on at all, so you will always get the entire program on tape.
  - If the REC Timer is set to come on while another timer is operating, the other timer will shut off 10 seconds before the REC Timer is set to turn on, and the REC Timer will then take over.

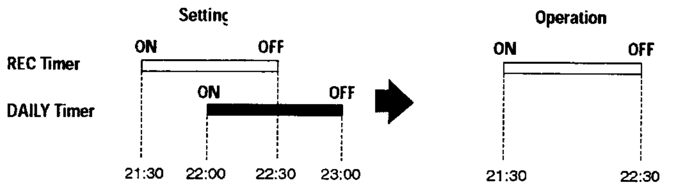
❑ The SLEEP Timer has the least priority. This means that if the SLEEP Timer is set while the DAILY Timer is operating, the DAILY Timer settings are cancelled. However, if the DAILY Timer is set to come while the SLEEP Timer is operating, the SLEEP Timer setting will be cancelled and the Unit will use the settings from the DAILY Timer.

Example 1



The REC Timer has priority.

Example 2

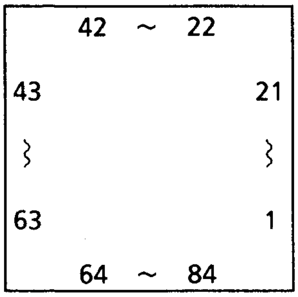


The REC Timer has priority.

Description of ICs

■ MN172412JAAW(IC902) : TUNER / DISPLAY Controller

1. Terminal layout

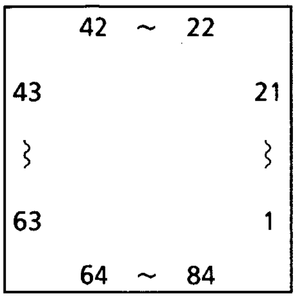


2. Terminal Function

Pin No.	Symbol	I/O	Functions and Operations	Pin No.	Symbol	I/O	Functions and Operations
1	7G	O	FL grid control	49	RDS RST	I	Reset signal from IC
2	8G	O	FL grid control	50	/TUNED	I	TUNED indication control
3~15	P1~P13	O	FL anode control	51	/STEREO	I	STEREO indication control
16	P14	O	FL anode control	52	MUTE	O	Muting of tuner sound
17	P15	O	FL anode control	53	DCSOUT	O	Compulink signal output
18	P16	O	FL anode control	54	DCSIN	I	Compulink signal input
19	P20	O	FL anode control	55	CS2	I	chip select terminal input
20	P19	O	FL anode control	56	KI1	I	Key matrix input
21	P18	O	FL anode control	57	KI2	I	Key matrix input
22	P17	O	FL anode control	58	KI3	I	Key matrix input
23	-BP	--	Power supply for FL display	59	KI4	I	Key matrix input
24	P36	O	FL anode control	60	IFDATA	I	Data from PLL synthesizer
25	P35	O	FL anode control	61	CE	O	Chip enable signal for PLL synthesizer
26	P34	O	FL anode control	62	CK	O	Clock for PLL synthesizer
27	P33	O	FL anode control	63	TUDATA	O	Data for PLL synthesizer
28	P32	O	FL anode control	64	CS1	I	chip select terminal input
29	P31	O	FL anode control	65	C-REQ	I	Communication request data to IC301
30	P30	O	FL anode control	66	C-CLK	O	Communication data clock to IC301
31	P29	O	FL anode control	67	C-DATA	O	Communication data to IC301
32	P28	O	FL anode control	68	/RESET	I	RESET signal input
33	P27	O	FL anode control	69	GND	--	Connected to GND
34	P26	O	FL anode control	70	X1	--	Non connection
35	P25	O	FL anode control	71	X2	--	Connected to GND
36	P24	O	FL anode control	72	OSC2	I/O	Clock oscillation terminal
37	P23	O	FL anode control	73	OSC1	I/O	Clock oscillation terminal
38	P22	O	FL anode control	74	VDD	---	Power supply (+ B5V)
39	P21	O	FL anode control	75	T-REQ	I	Request signal to IC901
40	FOUT	O	Clock frequency	76	T-CLK	O	Clock signal to IC901
41	SPISTB	O	Strobe signal for IC303	77	T-DATA	O	Data for IC901
42	SPIDT1	O	Data input from IC303	78	NC	--	Non connection
43	SPIDTO	O	Data output for IC303	79	1G	O	FL grid control
44	SPICSB	O	Chip select output for IC303	80	2G	O	FL grid control
45	RDS CK	O	Clock input from IC	81	3G	O	FL grid control
46	RDS DATA	O	Data signal from IC	82	4G	O	FL grid control
47	RDS RST	O	Reset signal for IC	83	5G	O	FL grid control
48	/TUINH	I	Inhibit signal Input	84	6G	O	FL grid control

■ MN17P3222JAAX(IC301) : DECK/CD Controller

1. Terminal layout

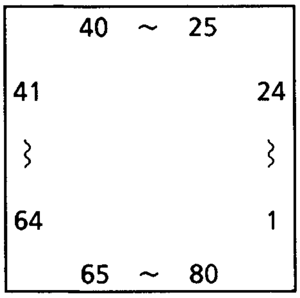


3. Terminal Function

Pin No.	Symbol	I/O	Functions and Operations	Pin No.	Symbol	I/O	Functions and Operations
1	/APACK	I	APACKswitch detect input	49	/RESTSW	I	Traverse REST sw input
2	AEQ	O	It is "L" when CrO2 tape is in deck A	50		--	Connected to GND
3	DECKAI	O	DECKA indicater control	51		--	Connected to GND
4	DECKBI	O	DECKB indicater control	52	/RST	O	CD Lsi reset signal output
5		--	Non connection	53	MLD	O	Command load signal output to CD Lsi
6		--	Non connection	54	MDATA	O	Command data output to CD Lsi
7	RECI	O	Indication control	55	MLCK	O	Command clock signal output to CD Lsi
8	PON IND	O	Power indicater control	56	DATA	O	Communication data to changer μ-com
9	DISC1IND	O	DISC1 indicater control	57	SCK	O	Communication clock signal to changer μ-com
10	DISC2IND	O	DISC2 indicater control	58	CHST	I	Strobe signal to changer μ-com
11	DISC3IND	O	DISC3 indicater control	59	REQ1	I	Request signal to changer μ-com
12	PBEQ	O	Play back	60		--	Connected to GND
13	MSIN	I	music scan signal input	61		--	Connected to GND
14	NR	O	NR control signal	62		--	Connected to GND
15	/CAPN	O	Capstan (ON/OFF) control	63	CS	--	Connected to GND
16	BPLZ	O	B mecha. solenoide control	64		--	Connected to GND
17	APLZ	O	A mecha. solenoide control	65		--	Connected to GND
18		--	Connected to GND	66		--	Connected to GND
19		--	Non connection	67		--	Connected to GND
20	BMT	O	It is 'H'when Deck B is not playing	68	/RESET	I	CD reset signal input
21	OMT	O	Deck PB Mute control signal	69	GND	--	Connected to GND
22	RMT	O	Recording mute signal output	70	NC	--	Non connection
23		--	Non connection	71	GND	--	Connected to GND
24	/PB/REC	O	Rec. P.B select signal output	72	OSC	I	Osilaltion terminal
25	REC	O	It is "H" when recording	73	OSC	---	Osilaltion terminal
26	BIAS	O	REC bias ON/OFF control	74	VDD	---	+5V
27~39		--	Connected to GND	75	DCS IN	I	DCS signal input
40	C-REQ	O	Communication request data output to IC902	76	DCS OUT	O	DCS signal output
41	C-CLK	I	Clock signal input from IC902	77	APLS	I	A mech. reel palse input
42		--	Non connection	78	BEQ	O	Play equalizer control
43	C-DATA	I	Command data output to IC902	79	/PSWB	I	B mech. play switch input
44		--	Connected to GND	80	BPLS	I	B mech.pranger control output
45	SQCK	O	Outside lock for sub-code Q resister output	81	/FREC	I	FREC switch detect input
46	SUBQ	I	Sub code and Q register signal input	82	/RREC	I	RREC switch detect input
47	LSION	O	CD Lsi on signal output	83	/BPACK	I	BPACKswitch detect input
48	STAT	O	STATUS signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK)	84	/PSWA	O	A mech. play switch input

■ HD404719A71FS(IC901) : AMP Controller

1. Terminal layout

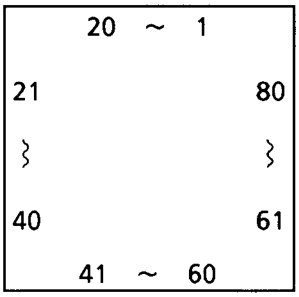


2. Terminal Function

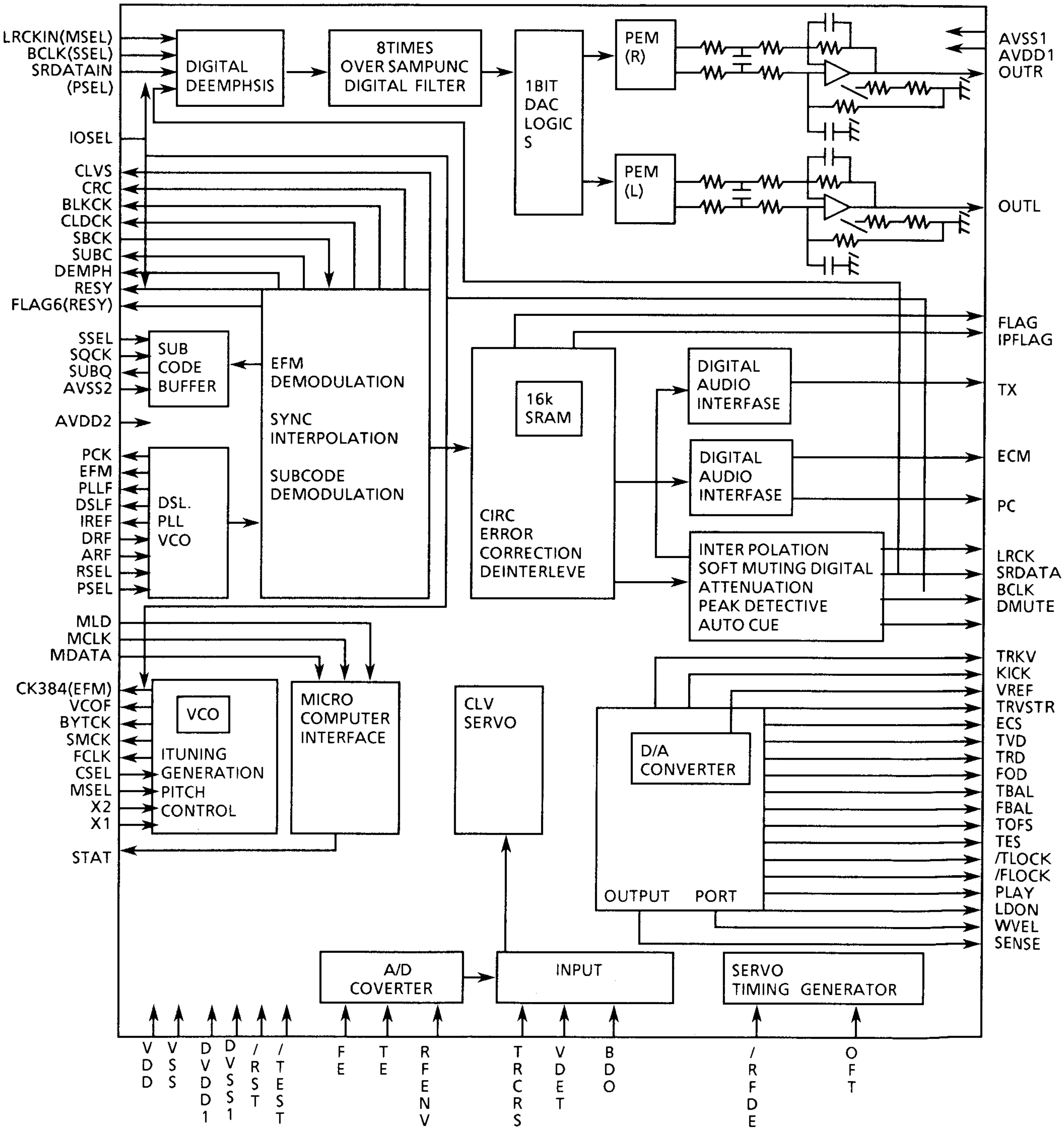
Pin No.	Symbol	I/O	Functions and Operations	Pin No.	Symbol	I/O	Functions and Operations
1	IN6	I	Key input (A/D convert)	40		--	Not use
2	/INH	I	Inhibit signal input	41	CDI	O	CD indication control
3	/PRT	I	Protector signal input	42	TUI	O	TUNED indication control
4	AD GND	--	Connected to GND	43	TAPEI	O	TAPE indication control
5	RESET	I	Reset signal input	44	VCRI	O	VCR indication control
6	OSC1	I/O	Clock oscillation terminal	45		--	Not use
7	OSC2	I/O	Clock oscillation terminal	46	APOI	O	APO indication control
8	GND	--	Connected to GND	47	BASSI	O	BASS indication control
9		--	Connected to GND	48	STUNDBYI	O	STNDBY indication control
10		--	Not use	49		--	Connected to GND
11	/TEST	O	Pull up	50~57		--	Not use
12	VCC	--	Power supply	58	SCK	O	Clock for IC401
13	RDS	O	Chip select teminal	59	SDA1	O	Data for IC401
14	PROLOGIC	O	Chip select teminal	60		--	Not use
15	KARAOKE	O	Chip select teminal	61	/RMIN	I	Remote control signal input
16	ECHO	O	Chip select teminal	62		--	Not use
17	SABASS	O	Chip select teminal	63	T-DATA	I	Communication data from IC302
18	HPIN	I	Head phone detect	64	T-REQ	O	Communication request data to IC302
19	CDRESET	O	CD servo Lsi reset signal outrput	65	T-CLK	O	Communication data clock from IC302
20	/TUINH	O	Tuner Inhibit signal output	66~68		--	Not use
21	TURESET	O	Tuner reset signal outrput	69	JOG2	I	Input 2 Jog pulse
22	DCSIN	I	Compulink signal data input	70	JOG1	I	Input 1 Jog pulse
23	DCSOUT	O	Compulink signal data output	71		--	Not use
24	ACO	O	Power suplly control signal	72	SMUTE	O	Source Mute control signal
25	CONT.A	O	KARAOKE on/off control signal	73	ECHO2	O	Echo2 signal output
26,27		--	Not use	74	ECHO1	O	Echo1 signal output
28	RERAY1	O	Speaker relay on/off signal output	75	AD Vcc	---	Power supply (+ B5V)
29		--	Not use	76	IN1	I	Key input (A/D convert)
30	SURR	O	Surrund ON/OFF control signal	77	IN2	I	Key input (A/D convert)
31		--	Not use	78	IN3	I	Key input (A/D convert)
32~38		--	Not use	79	IN4	I	Key input (A/D convert)
39		--	Not use	80	IN5	I	Key input (A/D convert)

■ MN35510 (IC603) : DIGITAL SERVO & DIGITAL SIGNAL PROCESSER

1. Terminal Layout


20 ~ 1
21
80
40
61
41 ~ 60

2. Block Diagram

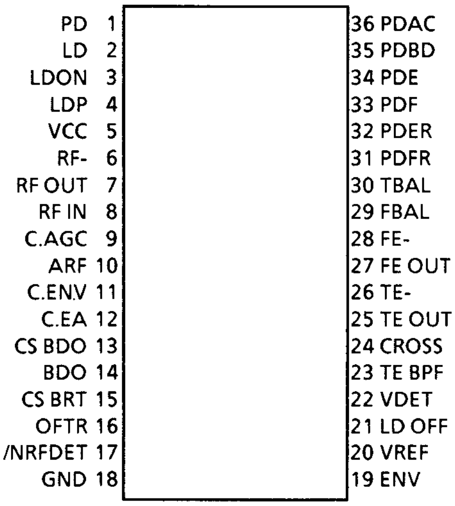

LRCKIN(MSEL)
BCLK(SSEL)
SRDATAIN
(PSEL)
IOSEL
CLVS
CRC
BLKCK
CLDCK
SBCK
SUBC
DEMPH
RESY
FLAG6(RESY)
SSEL
SQCK
SUBQ
AVSS2
AVDD2
PCK
EFM
PLLF
DSLF
IREF
DRF
ARF
RSEL
PSEL
MLD
MCLK
MDATA
CK384(EFM)
VCOF
BYTCK
SMCK
FCLK
CSEL
MSEL
X2
X1
STAT
DIGITAL DEEMPHSIS
8TIMES OVER SAMPUNC DIGITAL FILTER
1BIT DAC LOGIC S
PEM (R)
PEM (L)
SUB CODE BUFFER
EFM DEMODULATION
SYNC INTERPOLATION
SUBCODE DEMODULATION
DSL. PLL VCO
16k SRAM
CIRC ERROR CORRECTION DEINTERLEVE
DIGITAL AUDIO INTERFASE
DIGITAL AUDIO INTERFASE
INTER POLATION SOFT MUTING DIGITAL ATTENUATION PEAK DETECTIVE AUTO CUE
VCO
ITUNING GENERATION PITCH CONTROL
MICRO COMPUTER INTERFACE
CLV SERVO
D/A CONVERTER
OUTPUT PORT
A/D COVERTER
INPUT
SERVO TIMING GENERATOR
AVSS1
AVDD1
OUTR
OUTL
FLAG
IPFLAG
TX
ECM
PC
LRCK
SRDATA
BCLK
DMUTE
TRKV
KICK
VREF
TRVSTR
ECS
TVD
TRD
FOD
TBAL
FBAL
TOFS
TES
/TLOCK
/FLOCK
PLAY
LDON
WVEL
SENSE
VDD
VSS
DVDD1
DVSS1
/RST
/TEST
FE
TE
RFENV
TRCRS
VDET
BDO
/RFDE
OFT

3. Description

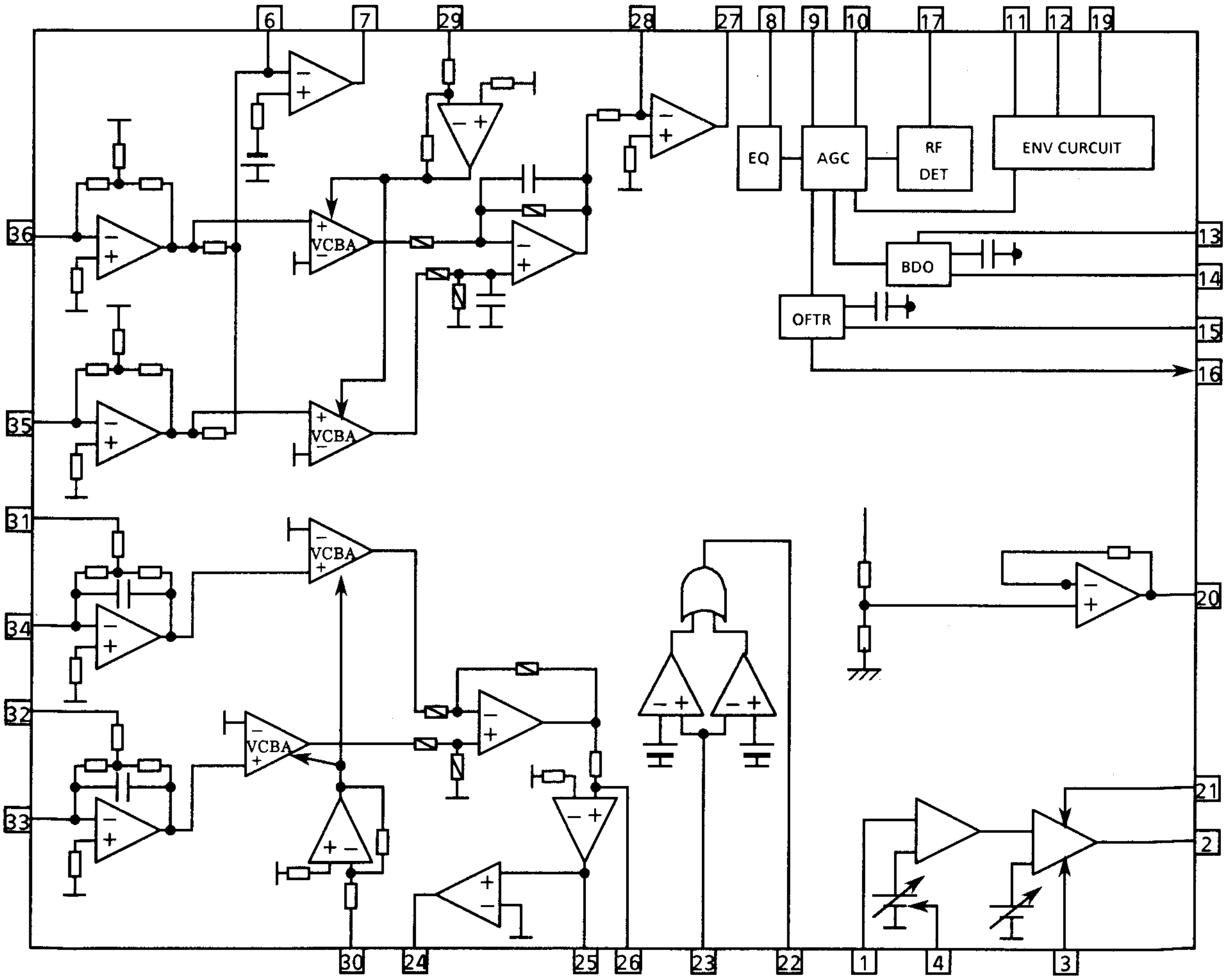
Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	BCLK	O	Bit clock output pin SRDATA	41	TES	O	Tracking error shunt signal output (H;shunt)
2	LRCK	O	L/R distinction signal output	42	PLAY	–	Not used
3	SRDATA	O	Serial data output	43	WVEL	–	Not used
4	DVDD1	–	Power supply(Digital)	44	ARF	I	RF signal input
5	DVSS1	–	Connected to GND (Digital)	45	IREF	I	Reference current input pin
6	TX	O	Not use	46	DRF	–	Connected to GND
7	MCLK	I	μ-com command clock signal input (Data is latched at signal's rising point)	47	DSLF	I/O	Loop filter pin for DSL
8	MDATA	I	μ-com command data input	48	PLLF	I/O	Loop filter pin for PLL
9	MLD	I	μ-com command load signal input	49	VCOF	–	Connected to GND
10	SENSE	O	Not used	50	AVDD2	–	Power supply (Analog)
11	FLOCK	O	Not used	51	AVSS2	–	Connected to GND(Analog)
12	TLOCK	O	Not used	52	EFM	–	Not used
13	BLKCK	O	Subcode · block · clock signal output	53	PCK	–	Not used
14	SQCK	I	Outside lock for sub-code Q resister input	54	PDO	–	Not used
15	SUBQ	O	Sub-code Q-code output	55	SUBC	–	Not used
16	DMUTE	–	Connected to GND	56	SBCK	–	Not used
17	STATUS	O	Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK)	57	VSS	–	Connected to GND(for X'tal cscillation circuit)
18	RST	I	Reset signal input (L :Reset)	58	X1	I	Input of 16.9344MHz X'tal oscillation circuit
19	SMCK	–	Not used	59	X2	O	Output of X'tal oscillation circuit
20	PMCK	–	Not used	60	VDD	–	Power supply(for X'tal cscillation circuit)
21	TRV	O	Traverse enforced output	61	BYTCK	–	Not used
22	TVD	O	Traverse drive output	62	CLDCK	–	Not used
23	PC	–	Not used	63	FCLK	–	Not used
24	ECM	O	Spindle motor drive signal (Enforced mode output) 3-State	64	IPPLAG	–	Not used
25	ECS	O	Spindle motor drive signal (Servo error signal output)	65	FLAG	–	Not used
26	KICK	O	Kick pulse output	66	CLVS	–	Not used
27	TRD	O	Tracking drive output	67	CRC	–	Not used
28	FOD	O	Focus drive output	68	DEMPH		Not used
29	VREF	I	Reference voltage input pin for D/A output block(TVD,FOD,FBAL,TBAL)	69	RESY	–	Not used
30	FBAL	O	Focus Balance adjust signal output	70	IOSEL	–	Pull up
31	TBAL	O	Tracking Balance adjust signal output	71	TEST	–	Pull up
32	FE	I	Focus error signal input(Analog input)	72	AVDD1	–	Power supply (Digital)
33	TE	I	Tracking error signal input(Analog input)	73	OUT L	O	Lch audio output
34	RF ENV	I	RF envelope signal input(Analog input)	74	AVSS1	–	Connected to GND
35	VDET	I	Vibration detect signal input(H : detect)	75	OUT R	O	Rch audio output
36	OFT	I	Off track signal input(H : off track)	76	RSEL	–	Pull up
37	TRCRS	I	Track cross signal input	77	CSEL	–	Connected to GND
38	RFDET	I	RF detect signal input (L : detect)	78	PSEL	–	Connected to GND
39	BDO	I	BDO input pin (H : drop out)	79	MSEL	–	Connected to GND
40	LDON	O	Laser ON signal output (H : on)	80	SSEL	–	Pull up (+ 5V)

■ AN8806SB (IC601) : RF & SERVO AMP

1. Terminal Layout


PD 1
LD 2
LDON 3
LDP 4
VCC 5
RF- 6
RF OUT 7
RF IN 8
C.AGC 9
ARF 10
C.ENV 11
C.EA 12
CS BDO 13
BDO 14
CS BRT 15
OFTR 16
/NRFDET 17
GND 18
36 PDAC
35 PDBD
34 PDE
33 PDF
32 PDER
31 PDFR
30 TBAL
29 FBAL
28 FE-
27 FE OUT
26 TE-
25 TE OUT
24 CROSS
23 TE BPF
22 VDET
21 LD OFF
20 VREF
19 ENV

2. Block Diagram

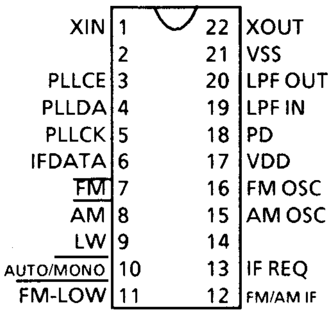

6
7
29
28
27
8
9
10
17
11
12
19
36
35
31
34
32
33
VCBA
EQ
AGC
RF DET
ENV CURCUIT
BDO
OFTR
13
14
15
16
20
21
2
30
24
25
26
23
22
1
4
3

3. Functions

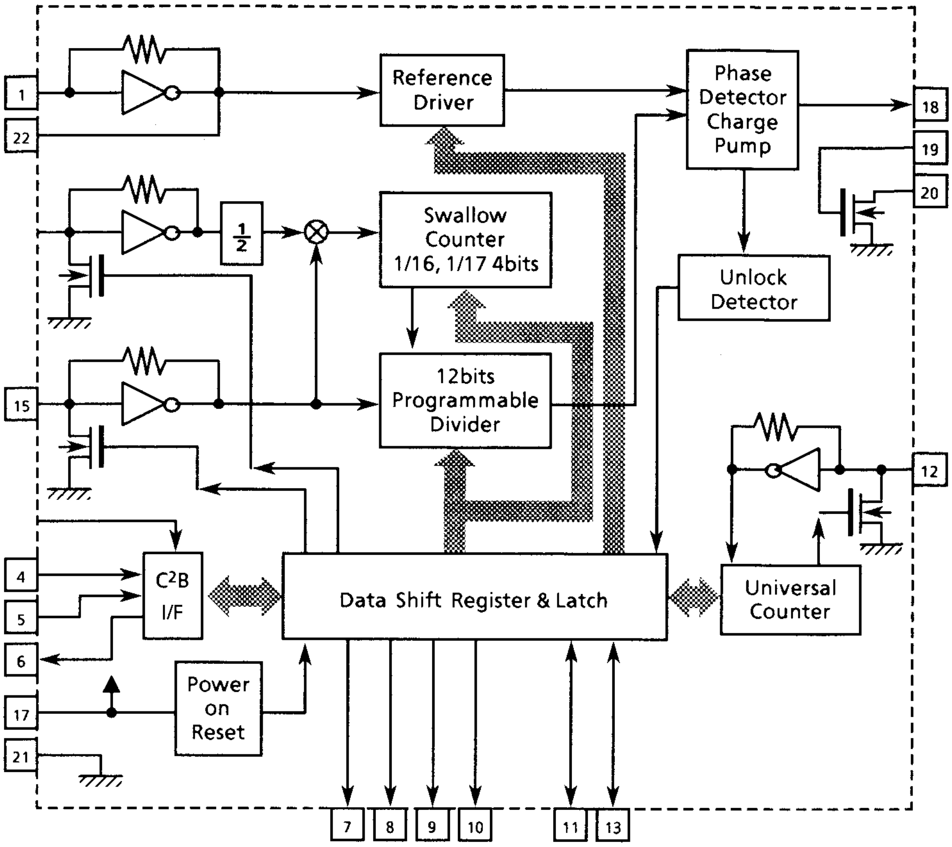
Pin No.	Symbol	I/O	Functions and operations
1	PD	I	APC amp input terminal
2	LD	O	APC amp output terminal
3	LD ON	I	APC ON/OFF control terminal
4	LDP	--	Connected to ground
5	VCC	--	Power supply
6	RF-	I	Inverse input pin for RF amp
7	RF OUT	O	RF amp output
8	RF IN	I	RF input
9	C.AGC	I/O	Connecting pin of AGC loop filter
10	ARF	O	RF output
11	C.ENV	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
12	C.EA	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
13	CS BDO	I/O	A capacitor is connected to detect the lower envelope of the RF signal
14	BDO	O	BDO output pin
15	CS BRT	I/O	A capacitor is connected to detect the lower envelope of the RF signal
16	OFTR	O	Of-track status signal output
17	/NRFDET	O	RF detection signal output
18	GND	--	Ground
19	ENV	O	Envelope output
20	VREF	O	Reference voltage output
21	LD OFF	--	Connect to ground
22	VDET	O	Vibration detection signal output
23	TE BPF	I	Input pin of tracking error through BPF
24	CROSS	O	Tracking error cross output
25	TE OUT	O	Tracking error signal output
26	TE-	I	Inverse input pin for tracking error amp
27	FE OUT	O	Output pin of focus error
28	FE-	I	Inverse input pin for focus error amp
29	FBAL	I	Focus balance control
30	TBAL	I	Tracking balance control
31	PDFR	I/O	F I-V amp gain control
32	PDER	I/O	E I-V amp gain control
33	PDF	I	I-V amp input
34	PDE	I	I-V amp input
35	PD BD	I	I-V amp input
36	PD AC	I	I-V amp input

■ LC72131 (IC121) : PLL Synthesizer

1. Terminal Layout


XIN 1
2
PLLCE 3
PLLDA 4
PLLCK 5
IFDATA 6
$\overline{\text{FM}}$ 7
$\overline{\text{AM}}$ 8
$\overline{\text{LW}}$ 9
AUTO/$\overline{\text{MONO}}$ 10
FM-LOW 11
22 XOUT
21 VSS
20 LPF OUT
19 LPF IN
18 PD
17 VDD
16 FM OSC
15 AM OSC
14
13 IF REQ
12 FM/AM IF

2. Block Diagram

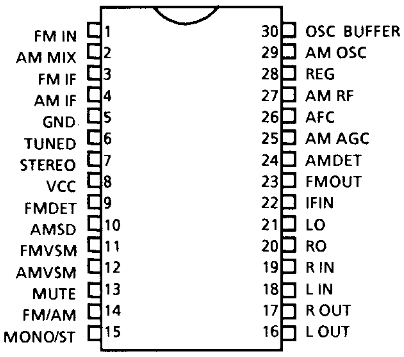

1
22
15
4
5
6
17
21
18
19
20
12
7
8
9
10
11
13
Reference Driver
Phase Detector Charge Pump
Swallow Counter 1/16, 1/17 4bits
1/2
12bits Programmable Divider
Unlock Detector
Universal Counter
C2B I/F
Data Shift Register & Latch
Power on Reset

3. Pin Functions

Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	X in	I	Crystal oscillator (7.2MHz).	12	FM/AM IF	I	Universal counter input
2		--	Not nse	13	IF REQ	O	Output the "IF-signal request" to IC102
3	PLLCE	I	Fix the chip enable to "H" when inputting(DI) and outputting (DO) the serial data	14		I	Not use
4	PLLDA	I	Receive the control data from the controller (IC201).	15	AMOSC		Input the local oscillator signal of AM.
5	PLLCK	I	This clock is used to synchronize data when transmitting the data of DI and DO.	16	FM OSC	I	Input the local oscillator signal of FM.
6	IFDATA	O	Transmit the data from LC72131 to the controller which is synchronized with CK.	17	VDD	O	This is a terminal of power supply.
7	$\overline{\text{FM}}$	O	It is "L" on FM mode.	18	PD	O	PLL charge pump output : When the local oscillator signal frequency is higher than the reference frequency high level signals will output. When it is lower than the reference frequency, low level signals will output. When it is same as reference frequency signals, it will be floating.
8	$\overline{\text{AM}}$	O	It is "L" on MW mode.	19	LPF IN	I	Transistor used for the PLL active low-pass filterr
9	LW	O	It is "L" on LW mode.	20	LPF OUT	O	Transistor used for the PLL active low-pass filterr
10	AUTO/$\overline{\text{MONO}}$	O	It is "L" on monaural, "H" on auto.	21	VSS	--	Connected to GND
11	$\overline{\text{POWER}}$	O	Regulator control singal PON "H", STANDBY "L"	22	X out	O	Crystal oscillator (7.2MHz).

■ LA1837 (IC102) : FM AM IF AMP & detector, FM MPX Decorder

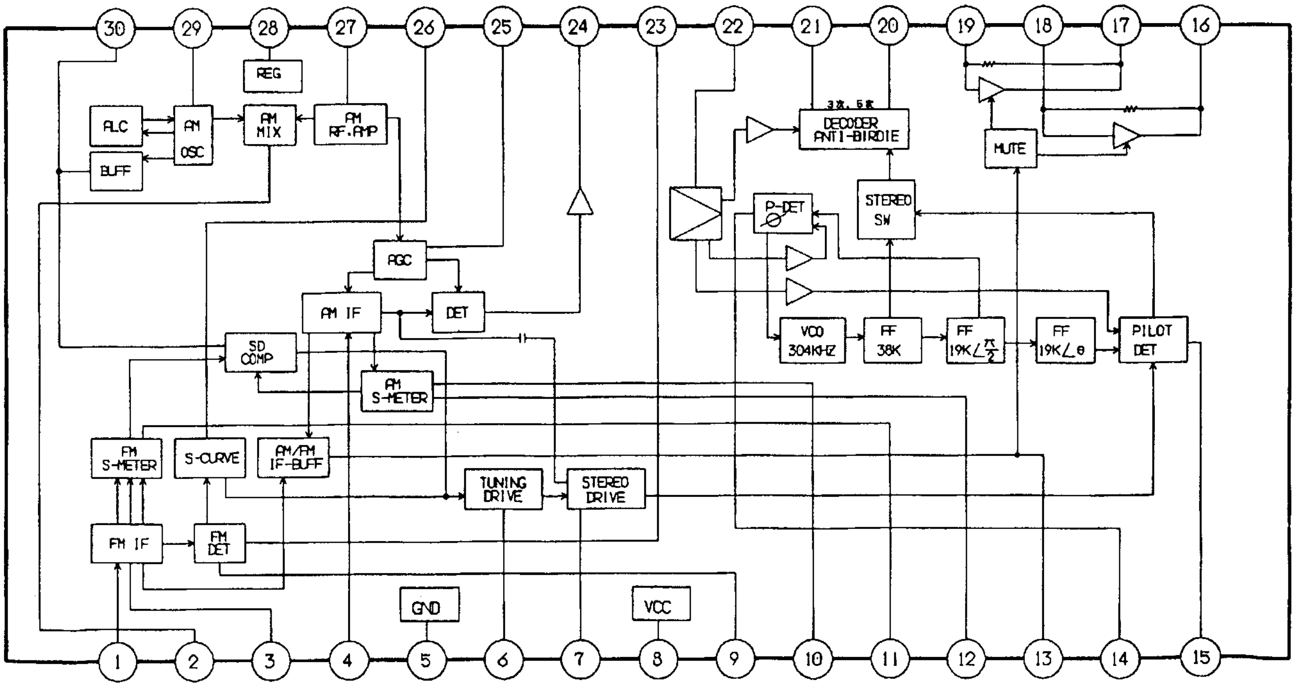
1. Terminal Layout


FM IN 1
AM MIX 2
FM IF 3
AM IF 4
GND 5
TUNED 6
STEREO 7
VCC 8
FMDET 9
AMSD 10
FMVSM 11
AMVSM 12
MUTE 13
FM/AM 14
MONO/ST 15
30 OSC BUFFER
29 AM OSC
28 REG
27 AM RF
26 AFC
25 AM AGC
24 AMDET
23 FMOUT
22 IFIN
21 LO
20 RO
19 R IN
18 L IN
17 R OUT
16 L OUT

3. Pin Function

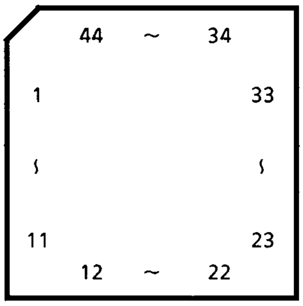
Pin No.	Symbol	I/O	Function
1	FM IN	I	This is an input terminal of FM IF Signal.
2	AM MIX	O	This is an output terminal for AM mixer.
3	FM IF	I	Bypass of FM IF
4	AM IF	I	Input of AM IF Signal.
5	GND	—	This is the device ground terminal.
6	/TUNED	O	When the set is tunning , this terminal becomes "L".
7	STEREO	O	Stereo indicator output. Stereo : "L", Mono : "H"
8	VCC	—	This is the power supply terminal.
9	FM DET	—	FM detect transformer.
10	AM SD	—	AM ceramic filter terminal
11	FM VSM	O	Fix the sensitivity of FM tuned
12	AM VSM	O	Fix the sensitivity of AM tuned
13	MUTE	O/I	When the signal of IF REQ of IC121(LC72131) appear, the signal of FM/AM IF output. //Muting control input.
14	FM/AM	I	Change over the FM / AM input. "H" : FM, "L" : AM
15	MONO/ST	O	Stereo : "H", Mono : "L"
16	L OUT	O	Left channel signal output.
17	R OUT	O	Right channel signal output
18	L IN	I	Input terminal of the Left channel post AMP.
19	R IN	I	Input terminal of the Right channel post AMP.
20	R OUT	O	Mpx Right channel signal output.
21	L OUT	O	Mpx Left channel signal output.
22	IF IN	I	Mpx input terminal.
23	FM OUT	I	Voltage controlled oscillator terminal.
24	AM DET	—	AM low cut adjustment.
25	AM AGC	I	This is an AGC voltage input terminal for AM.
26	AFC	—	This is an output terminal of voltage for FM-AFC.
27	AM RF	I	This is an input terminal for AM RF signal.
28	REG	—	Control of desides the frequency width
29	AM OSC•	—	This is a terminal of AM Local oscillation circuit.
30	OSC BUFFER	O	AM Local oscillation Signal output.

2. Block Diagram


30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
REG
ALC
AM OSC
AM MIX
AM RF.AMP
BUFF
AGC
AM IF
DET
SD COMP
AM S-METER
FM S-METER
S-CURVE
AM/FM IF-BUFF
TUNING DRIVE
STEREO DRIVE
FM IF
FM DET
GND
VCC
DECODER ANTI-BIRDIE
MUTE
P-DET
STEREO SW
VCO 304KHZ
FF 38K
FF 19K∠π/2
FF 19K∠0
PILOT DET
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

■ UPD65612GB-165(IC801) : Changer Controller

1. Terminal Layout

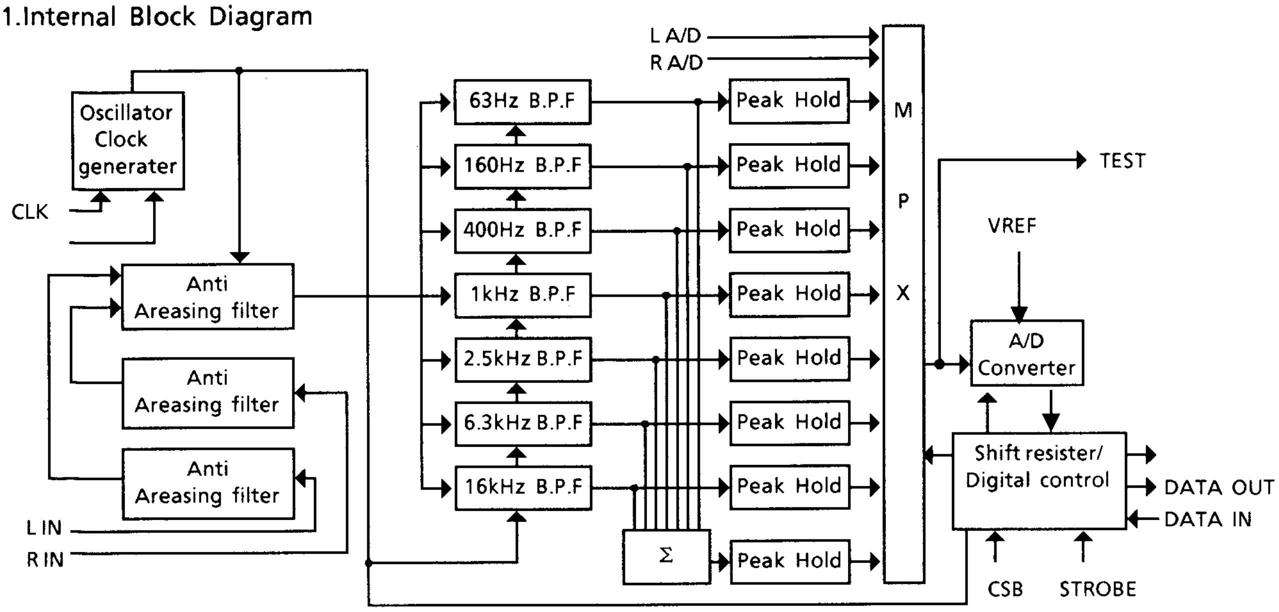


2. Pin Functions

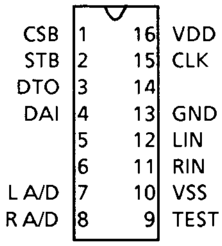
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	NC	--	Non connection	23	2SSW	I	TRAY2 switch input signal
2	NC	--	Non connection	24	1SSW	I	TRAY1 switch input signal
3	NC	--	Non connection	25	NC	--	Non connection
4	OS1I	I	Oscillation terminal	26	CAM0	I	Cam switch input signal for LCAM
5	OS1O	O	Oscillation terminal	27	CAM1	I	Cam switch input signal for LCAM
6	OS2I	I	Oscillation terminal	28	CAM2	I	Cam switch input signal for LCAM
7	OS2O	O	Oscillation terminal	29	CAM3	I	Cam switch input signal for LCAM
8	NC	--	Non connection	30	CAM4	I	Cam switch input signal for RCAM
9	C25IN	I	Connected to C25OUT	31	CAM5	I	Cam switch input signal for RCAM
10	C25OUT	O	Connected to C25IN	32	CAM6	I	Cam switch input signal for RCAM
11	RESET	I	Reset signal input	33	CAM7	I	Cam switch input signal for RCAM
12	REQ	O	Output the "mecha. data request"	34	FIT	O	Connected to C50
13	DATA	I/O	Control,Status data I/O	35	C50	I	Connected to FIT
14	ST	I	Strobe signal input	36	LMUP	O	L motor control signal
15	CKS	I	Clock input	37	LMDWN	O	L motor control signal
16	SELECT	--	Connected to GND	38	C25	--	Non connection
17	GND	--	GND	39	VDD	--	Power supply terminal
18	CK	--	Connected to GND	40	C100	--	Non connection
19	1MSW	I	TRAY1 switch input signal	41	RMUP	O	R motor control signal
20	2MSW	I	TRAY2 switch input signal	42	RMDWN	O	R motor control signal
21	3MSW	I	TRAY3 switch input signal	43	NC	--	Non connection
22	3SSW	I	TRAY3 switch input signal	44	NC	--	Non connection

■ XR1099(IC903) : 7-channel graphic equalizer filter with A/D converter

1.Internal Block Diagram


L A/D
R A/D
Oscillator Clock generater
CLK
Anti Areasing filter
Anti Areasing filter
Anti Areasing filter
L IN
R IN
63Hz B.P.F
160Hz B.P.F
400Hz B.P.F
1kHz B.P.F
2.5kHz B.P.F
6.3kHz B.P.F
16kHz B.P.F
Σ
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
M
P
X
TEST
VREF
A/D Converter
Shift resister/ Digital control
DATA OUT
DATA IN
CSB
STROBE

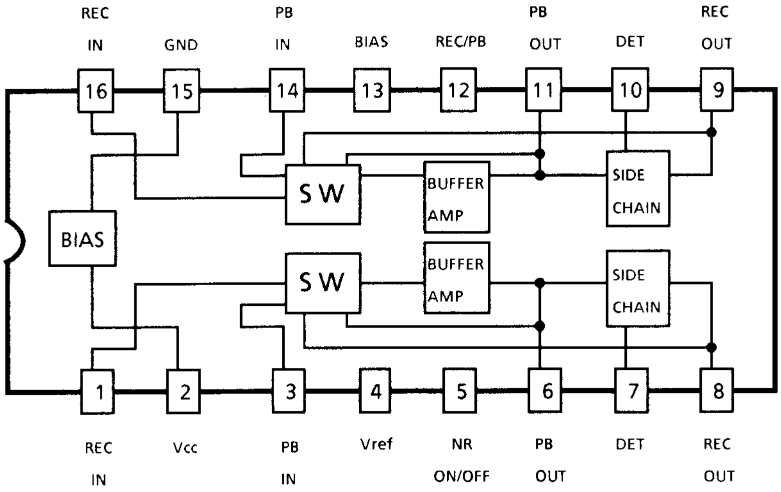
2.Terminal Layout


CSB 1
STB 2
DTO 3
DAI 4
5
6
L A/D 7
R A/D 8
16 VDD
15 CLK
14
13 GND
12 LIN
11 RIN
10 VSS
9 TEST

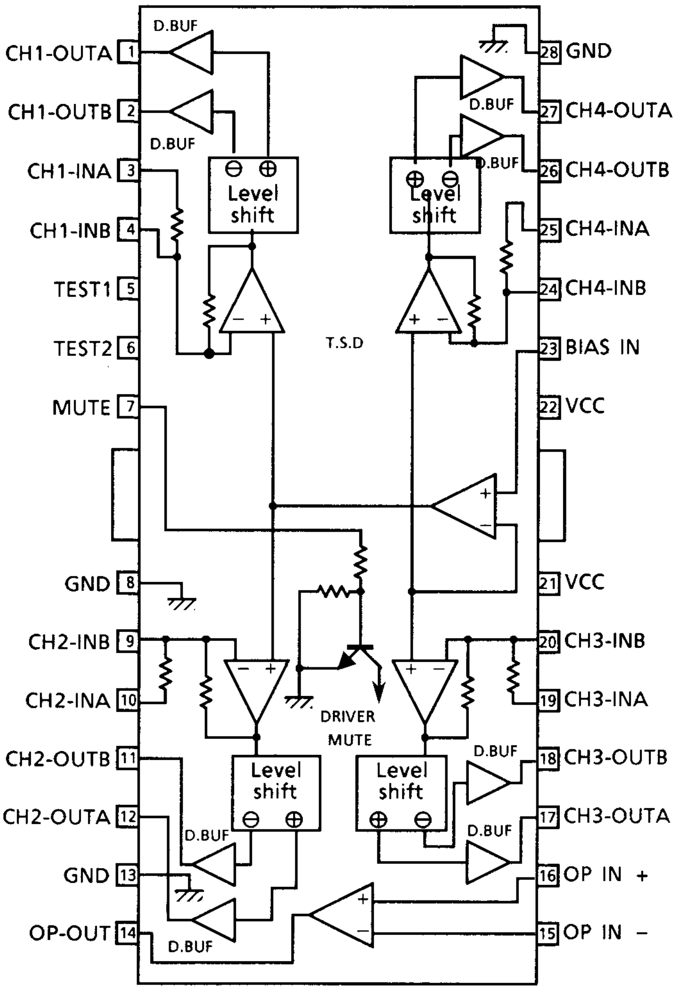
3.Terminal Description

Pin No	Symbol	I/O	Function	Pin No	Symbol	I/O	Function
1	CSB	I	Chip select	9	TEST	--	TEST Terminal
2	STB	I	Strobe signal	10	VSS	--	– 5V
3	SPIDTO	I	Data input	11	RIN	I	Connected to GND
4	SPIDTI	O	Data output	12	LIN	I	Sound signal input
5		--	Non connection	13	GND	--	GND
6		I	Connected to GND	14		I	Connected to GND
7	L A/D	I	Connected to GND	15	CLK	I	A resister is connected
8	R A/D	I	Connected to GND	16	VCC	--	+ 5V

■ HA12136A(IC231) : NR amplifier


REC IN
GND
PB IN
BIAS
REC/PB
PB OUT
DET
REC OUT
16
15
14
13
12
11
10
9
S W
BUFFER AMP
SIDE CHAIN
BIAS
S W
BUFFER AMP
SIDE CHAIN
1
2
3
4
5
6
7
8
REC IN
Vcc
PB IN
Vref
NR ON/OFF
PB OUT
DET
REC OUT

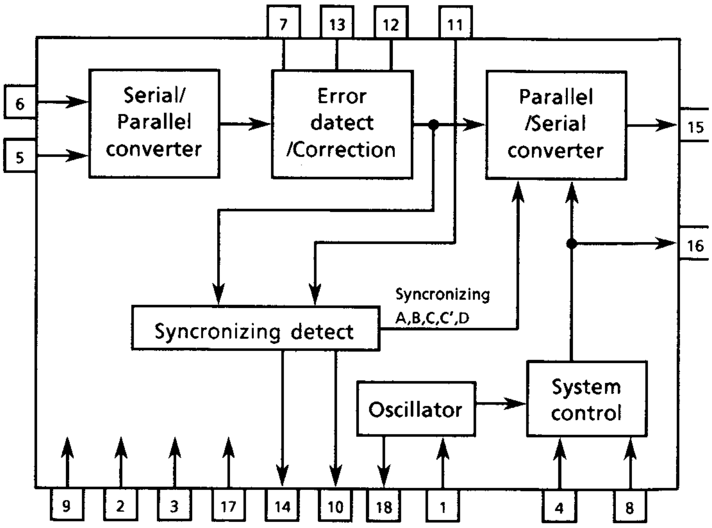
■ BA6897FP(IC602) : 4channel driver


D.BUF
CH1-OUTA 1
CH1-OUTB 2
D.BUF
CH1-INA 3
CH1-INB 4
TEST1 5
TEST2 6
MUTE 7
GND 8
CH2-INB 9
CH2-INA 10
CH2-OUTB 11
CH2-OUTA 12
GND 13
OP-OUT 14
D.BUF
Level shift
⊖ ⊕
T.S.D
DRIVER MUTE
D.BUF
28 GND
27 CH4-OUTA
26 CH4-OUTB
25 CH4-INA
24 CH4-INB
23 BIAS IN
22 VCC
21 VCC
20 CH3-INB
19 CH3-INA
18 CH3-OUTB
17 CH3-OUTA
16 OP IN +
15 OP IN −

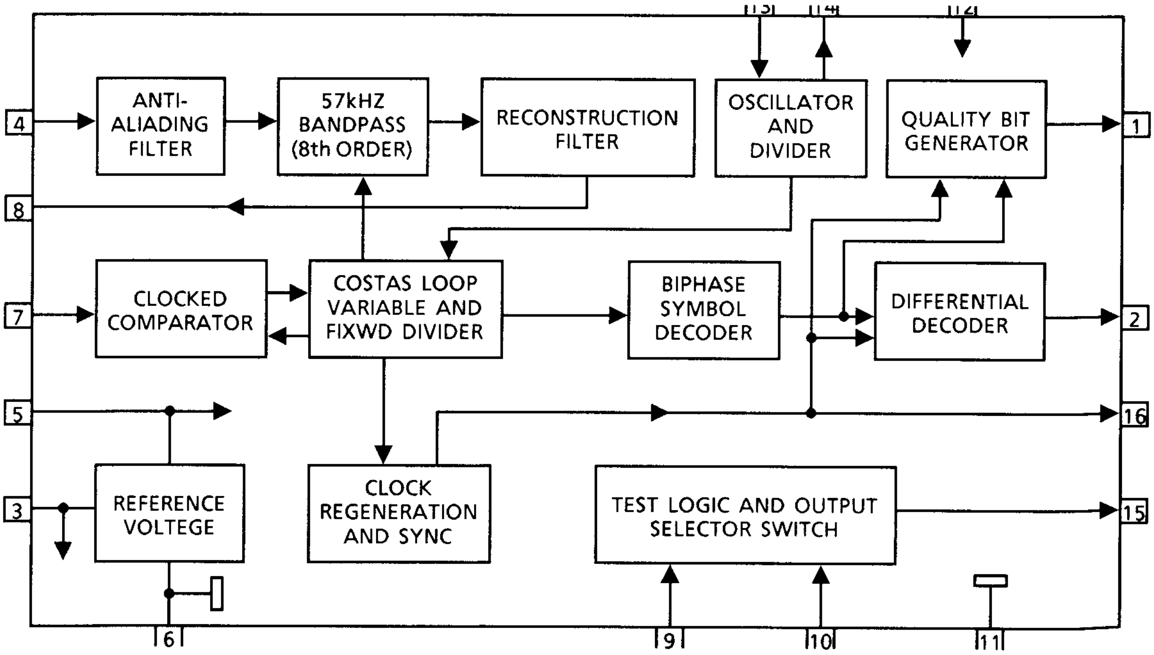
T.S.D : sermal shat down

D.BUF : Drive buffer

■ LC7073M (IC191) : Radio Data System


7
13
12
11
6
5
Serial/ Parallel converter
Error datect /Correction
Parallel /Serial converter
15
16
Syncronizing A,B,C,C',D
Syncronizing detect
Oscillator
System control
9
2
3
17
14
10
18
1
4
8

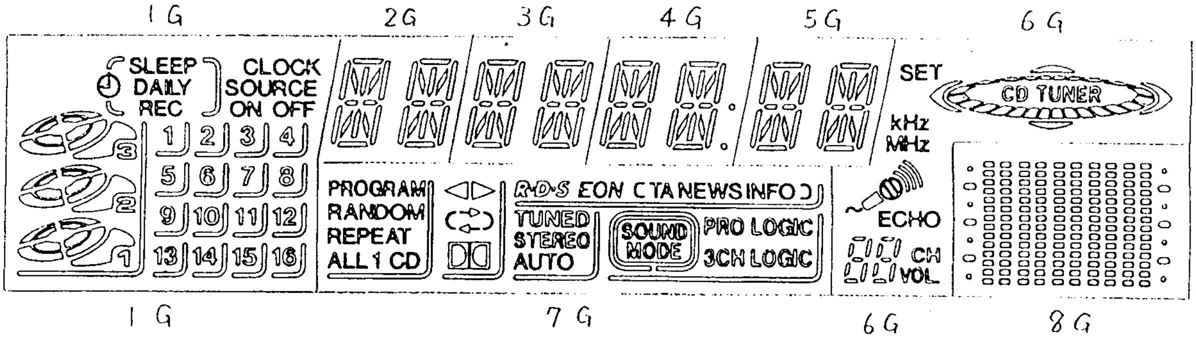
■ SAA6579T (IC192) : Radio data system demodulator


13
14
12
4
ANTI-ALIADING FILTER
57kHZ BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
QUALITY BIT GENERATOR
1
8
7
CLOCKED COMPARATOR
COSTAS LOOP VARIABLE AND FIXWD DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
2
5
16
3
REFERENCE VOLTEGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
15
6
9
10
11

Internal Connection of the Display

■ QLF0012-001(DI901)

1. Terminal Layout


1G
2G
3G
4G
5G
6G
SLEEP
DAILY
REC
CLOCK
SOURCE
ON OFF
SET
CD TUNER
kHz
MHz
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16
3
2
1
PROGRAM
RANDOM
REPEAT
ALL 1 CD
RDS EON CTA NEWS INFO
TUNED
STEREO
AUTO
SOUND MODE
PRO LOGIC
3CH LOGIC
ECHO
CH
VOL
1G
7G
6G
8G

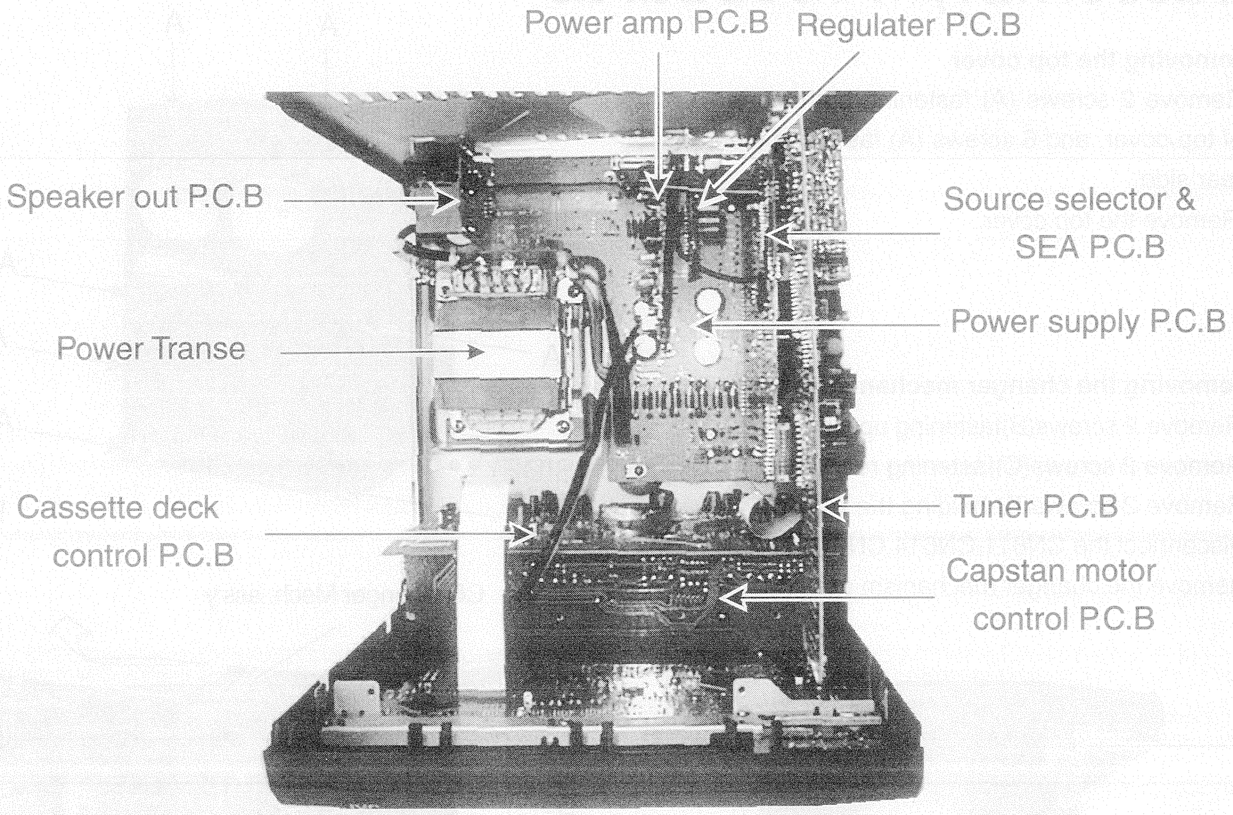
2. Segment connection

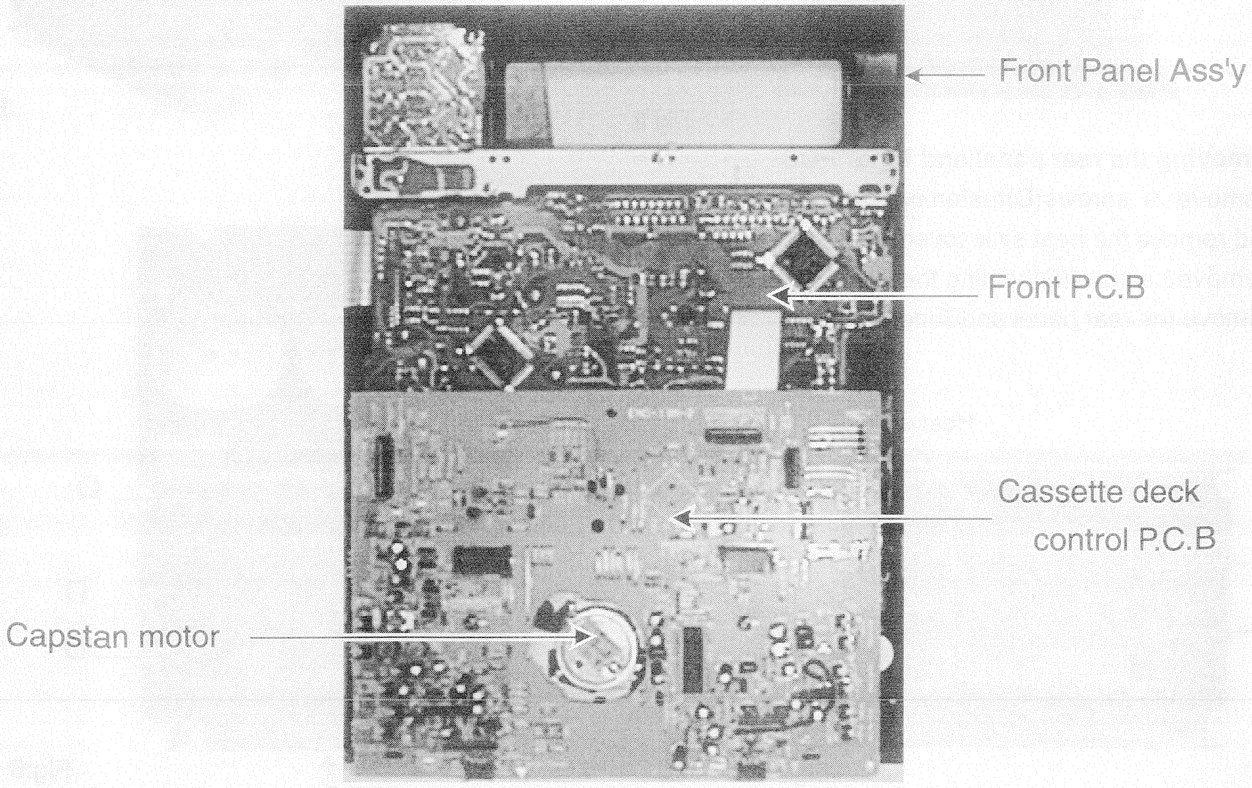
	1G	2G	3G	4G	5G	6G	7G	8G
P1	9J	—	—	—	—	—	⊏	5−3
P2	10J	—	—	—	—	—	EON	4−3
P3	11J	4a	4a	4a	4a	6−k	RDS	3−3
P4	12J	4b	4b	4b	4b	6−j	—	2−3
P5	5J	4k	4k	4k	4k	6−e	7−2	1−3
P6	6J	4j	4j	4j	4j	6−f	—	5−2
P7	7J	4h	4h	4h	4h	6−g	7−6	4−2
P8	8J	4f	4f	4f	4f	6−h	7−8	3−2
P9	1J	4g	4g	4g	4g	6−i	7−7	2−2
P10	2J	4m	4m	4m	4m	6−a	7−10	1−2
P11	3J	4c	4c	4c	4c	6−b	7−9	5−1
P12	4J	4n	4n	4n	4n	6−c	7−1	4−1
P13	SOURCE	4p	4p	4p	4p	6−d	CD	3−1
P14	OFF	4r	4r	4r	4r	—	1	2−1
P15	ON	4e	4e	4e	4e	—	—	1−1
P16	CLOCK	4d	4d	4d	4d	—	ALL	S3
P17	16J	—	—	s	—	MHz	REPEAT	1−4
P18	15J	—	—	t	—	—	RANDOM	2−4
P19	14J	—	—	—	—	SET	PROGRAM	3−4
P20	13J	—	—	—	—	kHz	TA	4−4
P21	—	5d	5d	5d	5d	1a	—	5−4
P22	1−a	5e	5e	5e	5e	1b	NEWS	1−5
P23	1−b	5r	5r	5r	5r	1f	INFO	2−5
P24	1−c	5p	5p	5p	5p	1g	⊐	3−5
P25	2−a	5n	5n	5n	5n	1c	7−5	4−5
P26	2−b	5c	5c	5c	5c	1e	TUNED	5−5
P27	2−c	5m	5m	5m	5m	1d	STEREO	1−6
P28	3−a	5g	5g	5g	5g	CH	AUTO	2−6
P29	3−b	5f	5f	5f	5f	2a	7−3	3−6
P30	3−c	5h	5h	5h	5h	2b	7−11	4−6
P31	S1	5j	5j	5j	5j	2f	—	5−6
P32	—	5k	5k	5k	5k	2g	—	1−7
P33	1−d	5b	5b	5b	5b	2c	SOUND MODE	2−7
P34	REC	5a	5a	5a	5a	2e	7−4	3−7
P35	DAILY	—	—	—	—	2d	PRO LOGIC	4−7
P36	SLEEP	—	—	—	—	VOL	3CH LOGIC	5−7

3. Terminal connection

TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11									
ELECTRODE	F	F	NP	NP	1G	2G	3G	4G	5G	6G	7G									
TERMINAL NO.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ELECTRODE	8G	NX	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18
TERMINAL NO.	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
ELECTRODE	P19	P20	NX	NX	NX	P36	P35	P34	P33	P32	P31	P30	P29	P28	P27	P26	P25	P24	P23	P22
TERMINAL NO.										52	53	54	55	56	57	58	59	60	61	62
ELECTRODE										P21	NX	NX	NX	NX	NX	NX	NP	NP	F	F

Notes F: Filament NP: No Pin
G: Grid NX: No Extend Pin
P: Anode


Power amp P.C.B
Regulater P.C.B
Speaker out P.C.B
Source selector & SEA P.C.B
Power Transe
Power supply P.C.B
Cassette deck control P.C.B
Tuner P.C.B
Capstan motor control P.C.B


Front Panel Ass'y
Front P.C.B
Cassette deck control P.C.B
Capstan motor

Disassembly Procedures

(1) Removing the top cover

1. Remove 2 screws (A) fastening both sides of top cover, and 6 screws (A) fastening the rear side.
2. Remove the top cover.

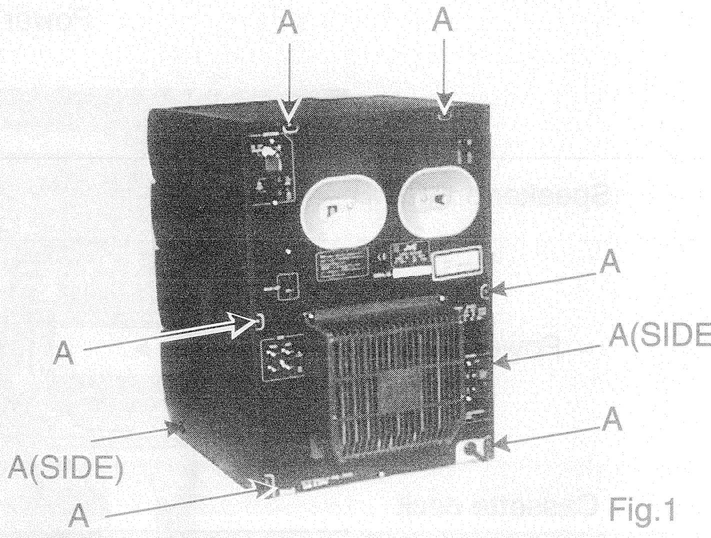

A
A
A
A(SIDE
A
A
A(SIDE)
A

Fig.1

(2) Removing the changer mechanism ass'y

1. Remove 2 screws(B)fastening up side (Fig. 2).
2. Remove 2 screws(C)fastening rear side.
3. Remove 2 screws(B) holding the PCB's.
4. Disconnect the CN811,CN614,CN613
5. Remove the changer mechanism ass'y(Fig.3).

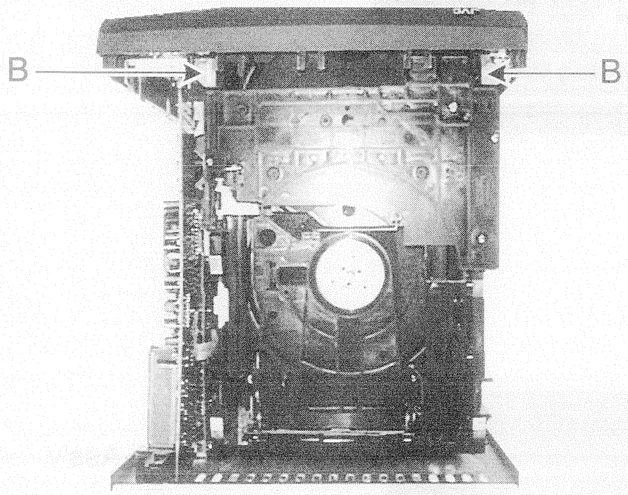


Fig.2

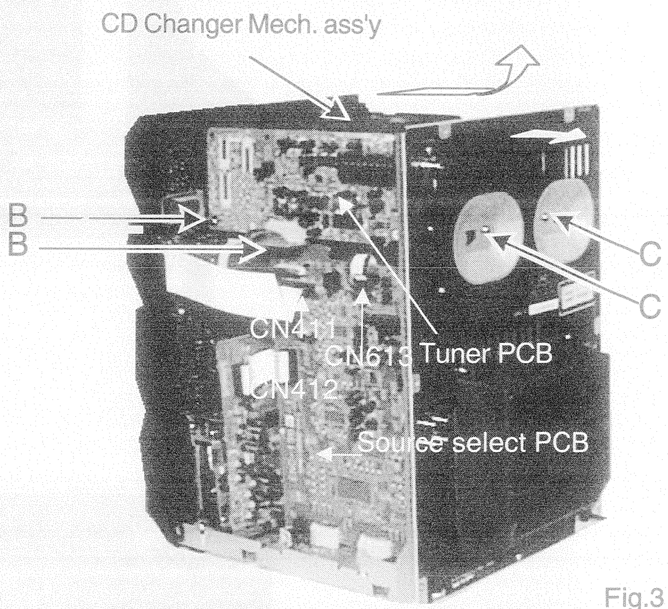

CD Changer Mech. ass'y
B
B
C
C
CN411
CN613
Tuner PCB
CN412
Source select PCB

Fig.3

(3) Removing the rear panel and Tuner PCB

1. Remove 9 screws(D)fastening rear side and remove the heat sink cover(Fig. 5).
2. Remove3 screws(D)holding the heat sink.
3. Remove the rear panel and Tuner PCB.

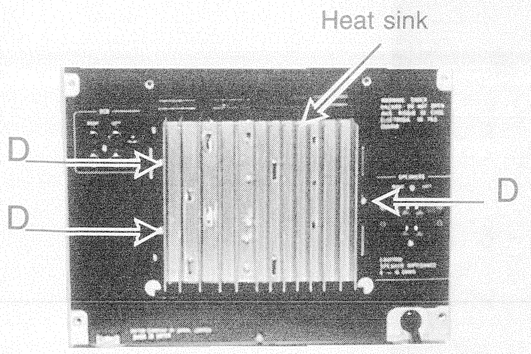

Heat sink
D
D
D

Fig.4

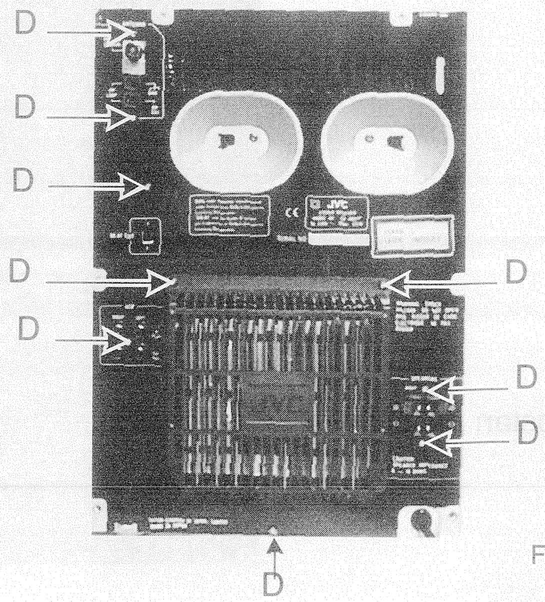


Fig.5

(4) Removing the Front panel ass'y

1.Remove the CDchanger mechanism.
2.Disconnect the CN411,CN412 and CN915,CN322.
3.Remove 2 screws(D)hololding the Front panel ass'y.
4.Remove the 2 hooks fastening both sides of Front panel ass'y.

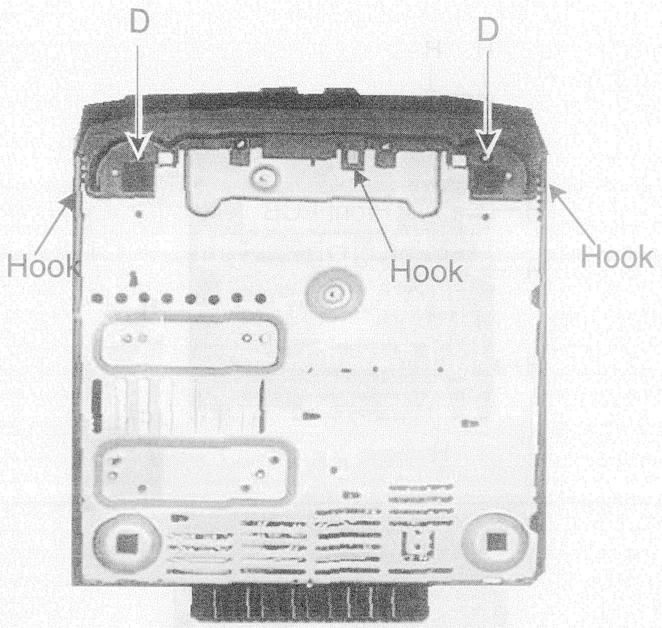

D
D
Hook
Hook
Hook

Fig.6

(5) Removing the Cassette deck control PCB.

1.Remove the Front panel Ass'y
2.Disconnect the CN331,CN332.
3.Remove 2 screws(D)holding the Cassette deck control PCB.

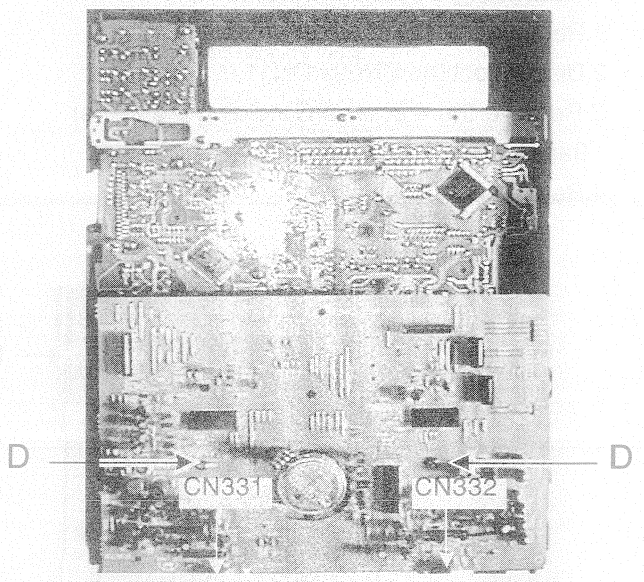

D
D
CN331
CN332

Fig.7

(6) Removing the Cassette deck mech. ass'y

1.Remove the Front panel Ass'y.
2.Remove the Cassette deck control PCB.
3.Remove 4 screws(E) and 4 screws(F) holding the Cassette mecanism ass'y.

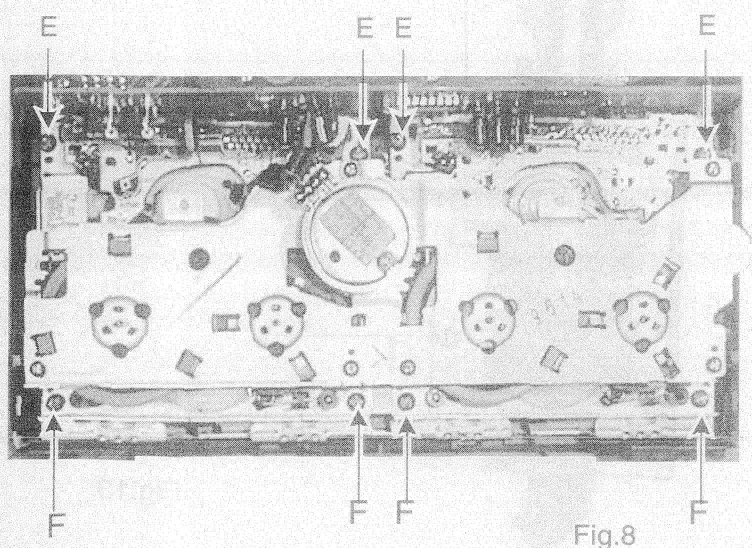


Fig.8

(7) Removing the Amp /Speaker out/Source select PCB

1.Remove the CD changer mech. and rear panel.
2.Disconnect the CN411,CN412,CN701,and Take the Source select PCB on the Power supply PCB.
3.Disconnect the CN915,and Take the Power amp and

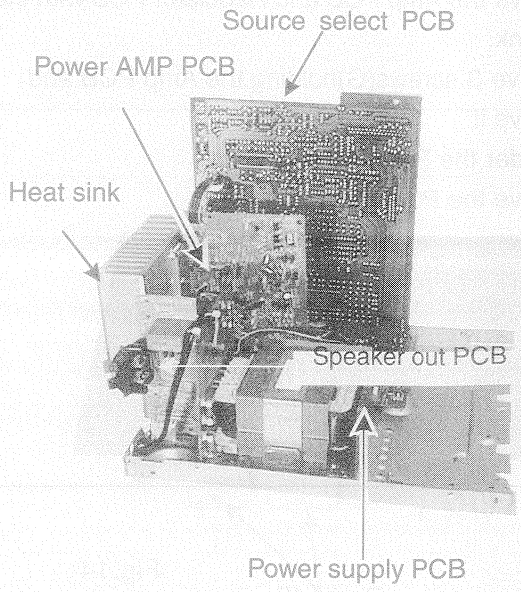

Source select PCB
Power AMP PCB
Heat sink
Speaker out PCB
Power supply PCB

Fig.9

(8) Removing the Power supply PCB

1. Remove the CD changer mech. and rear panel, and take the Source select PCB,Amp PCB and Speaker out PCB.
2. Disconnect the CN009,CN111.
3. Remove the 3 screws(D) holding the Power supply PCB.
4. Remove the Power supply PCB.

(9) Removing the Power Trans.

1. Remove the CD chenger mech.
2. Disconnect the CN009,CN111.
3. Remove the 4 screws(G)holding the Power Trans.
4. Remove the Power Trans..

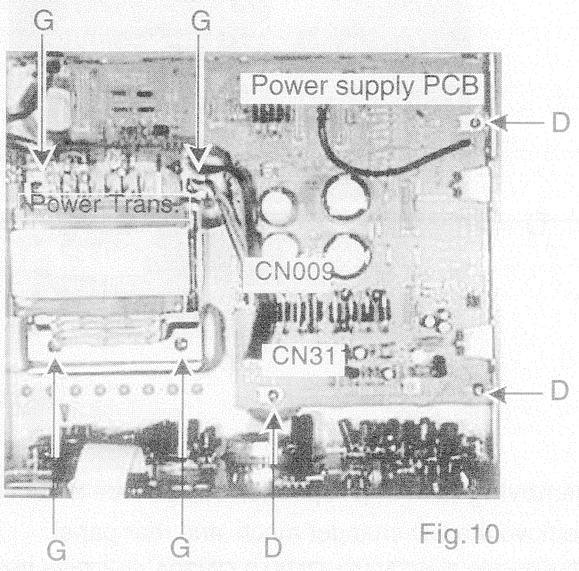

G
G
Power supply PCB
D
Power Trans.
CN009
CN311
D
G
G
D

Fig.10

(10) Removing the Front PCB

1. Remove the Front panel Assy.
2. Remove the deck control PCB.
3. Remove the 4 screws(H)holding the Bracket.
4. Remove the 9 screws(H)holding the Front PCB.
5. Remove the 5 screws(H)holding the deck sw and main volume PCB.

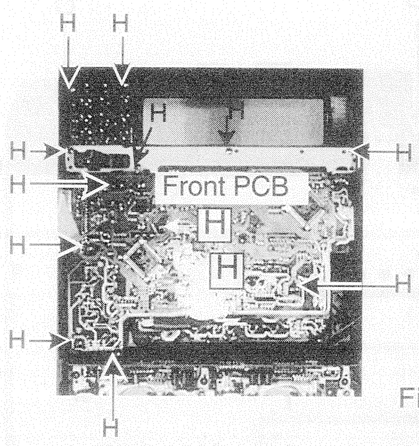

H
H
H
H
H
H
Front PCB
H
H
H
H
H
H
H

Fig.11

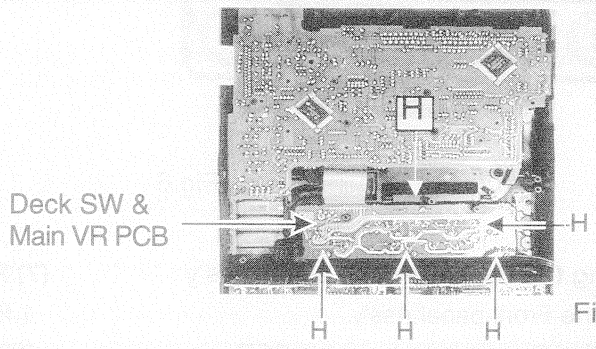

H
Deck SW &
Main VR PCB
H
H
H
H

Fig.12

(11) Removing the Power IC

1. Remove the Amp PCB and Regulator PCB with the heatsink.
2. Remove 3 screws(G)holding the Amp PCB and Remove it.
3. Unsolder the Power IC terminals.
4. Remove the Power IC.

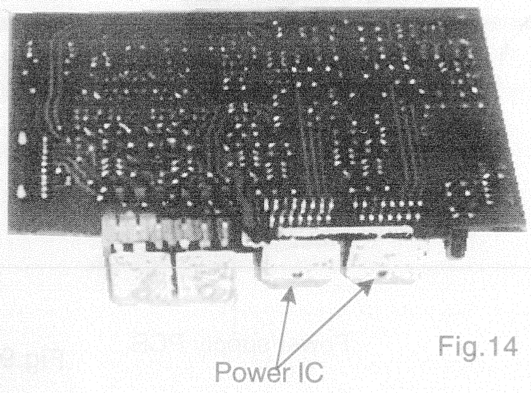


Fig.14

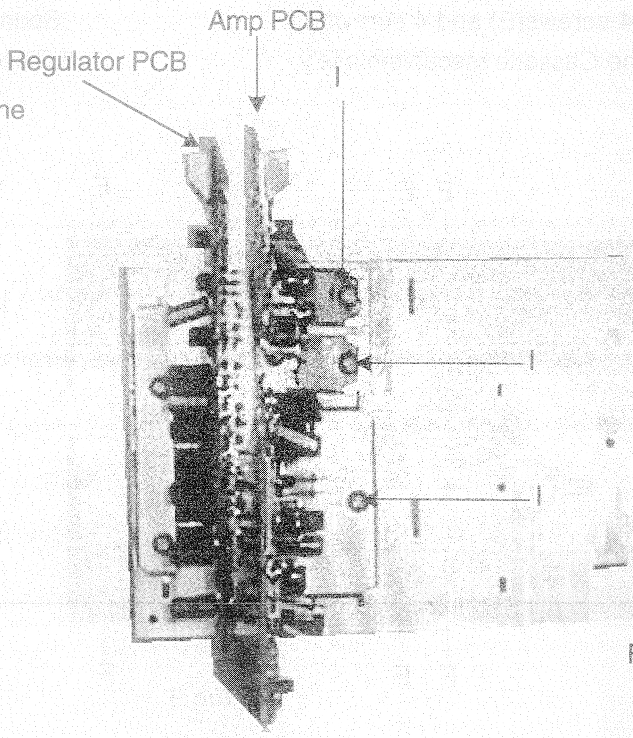

Amp PCB
Regulator PCB
I
I
I

Fig.13

(12) Removing the Capstan motor control PCB

1. Remove the cassette mechanism ass'y.
2. Remove the 2 screws (J)holding the capstanmotor control PCB.
3. Remove the capstan motor control PCB.

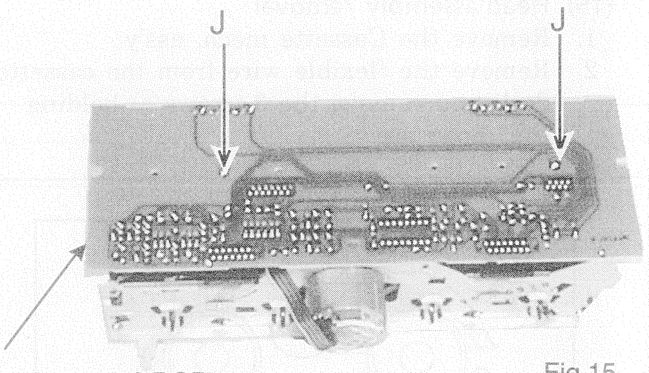

J
J
Capstan motor control PCB

Fig.15

(13) Removing the Cassette door

1. Remove the cassette mechanism ass'y
2. Push the Cassette door holder both side.
3. Remove the cassette door.(See Fig.16)

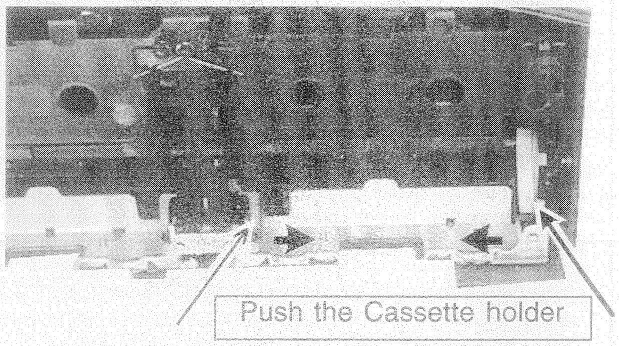

Push the Cassette holder

Fig.16

(14) Fix the Cassette Holder spring

Fix holder spring before fix guide . and cassette mech.(See Fig.17)

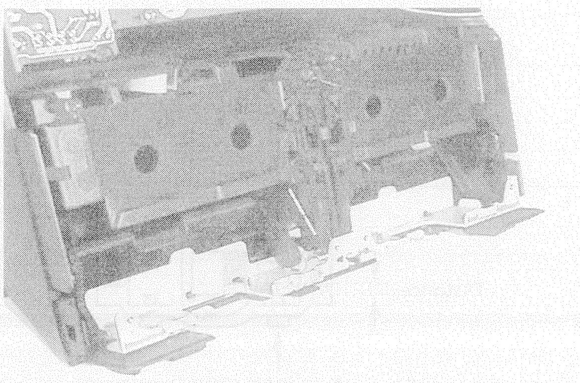
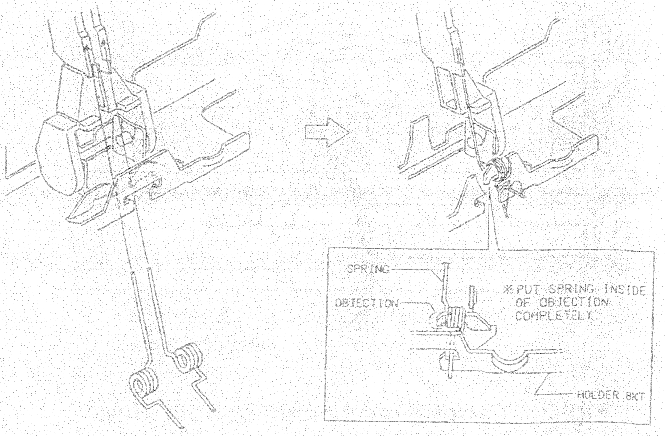


Fig.17


SPRING
OBJECTION
※PUT SPRING INSIDE OF OBJECTION COMPLETELY.
HOLDER BKT

Cassette Mech. Ass'y removal

(15) Head assembly removal

1. Remove the Cassette mech. ass'y.
2. Remove the flexible wire from the cassette deck and remove the 3 screws Ⓚ holding the head ass'y.

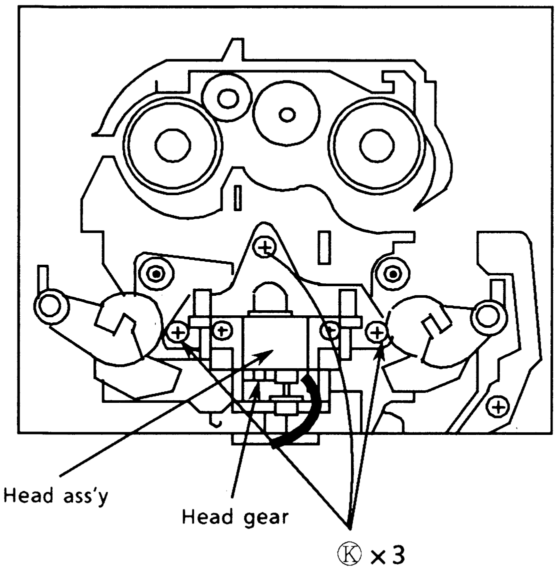

Head ass'y
Head gear
Ⓚ x 3

Fig.18 Cassette mechanism top view

(17) Pinch roller (FWD/REV) removal

1. Remove the cassette mech. assembly.
2. Remove the hook holding the pinch roller.
3. Remove the pinch roller ass'y.

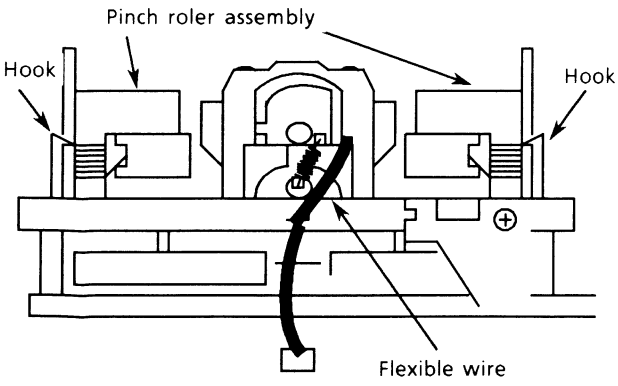

Pinch roler assembly
Hook
Hook
Flexible wire

Fig. 20 Cassette mechanism bottom view

(16) Head assembly

1. The direction of the head is changed with the direction lever. When servicing, install the direction lever according to the direction of the head assembly.

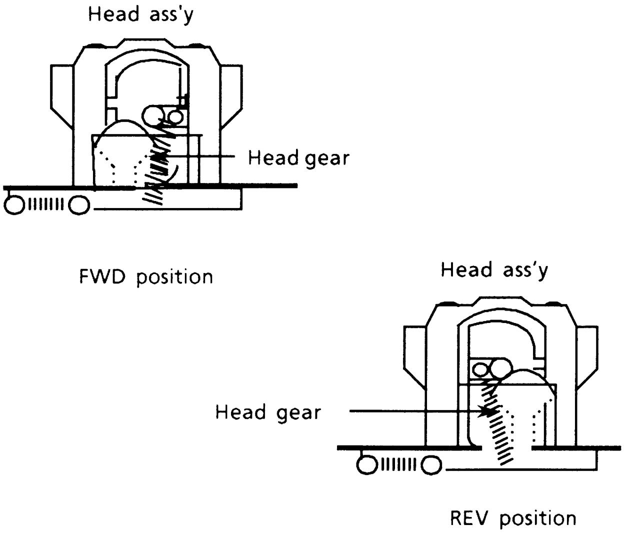

Head ass'y
Head gear
FWD position
Head ass'y
Head gear
REV position

Fig.19-A Head ass'y side view

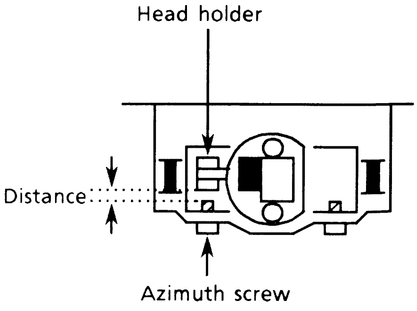

Head holder
Distance
Azimuth screw

Fig.19-B A distance of between head older and azimuth screw

(18) Capstan motor removal.

1. Remove the cassette mechanism.
2. Remove the cassette deck control PCB.
3. Remove the 6 screws Ⓛ holding the bracket.
4. Remove the hooks (■) of the bracket.
5. Put the cutting on the flywheel A together the bracket's pall as shown in fig. 22(Flywheel A) and check that the flywheel B is removed from the bracket's pall (fig. 22-Flywheel B).
6. Remove the capstan motor with the bracket.
7. Unsolder the broken flat wire of the capstan motor.
8. Remove the 2 screws fixing the motor and the bracket.

* To remove the bracket, it is easier to remove mech."B" first.
Vice versa, assembling mech."A" is easier for reassembly.

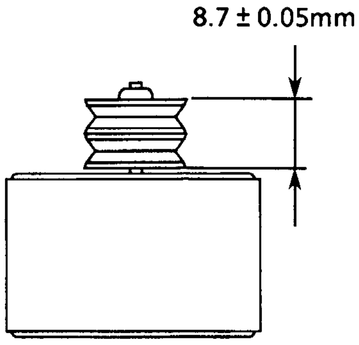


Fig. 21 Capstan motor pulley installation

(19) Flywheel removal

1. Remove the cassette mechanism assembly.
2. Remove the cassette amp PCB.
3. Remove the 6 screws Ⓛ and the bracket.
4. Remove the 4 hooks of the bracket.
5. Remove the bracket.
6. Remove the flywheels.

*The oil on the capstan must be wiped out after reassembling.

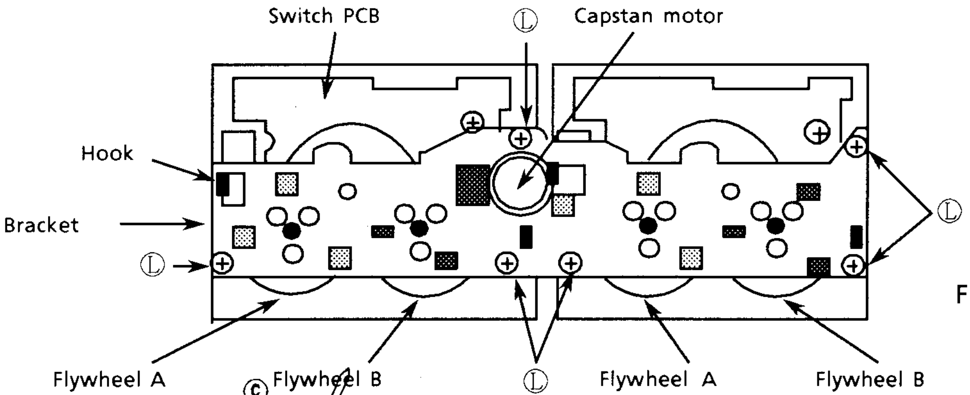
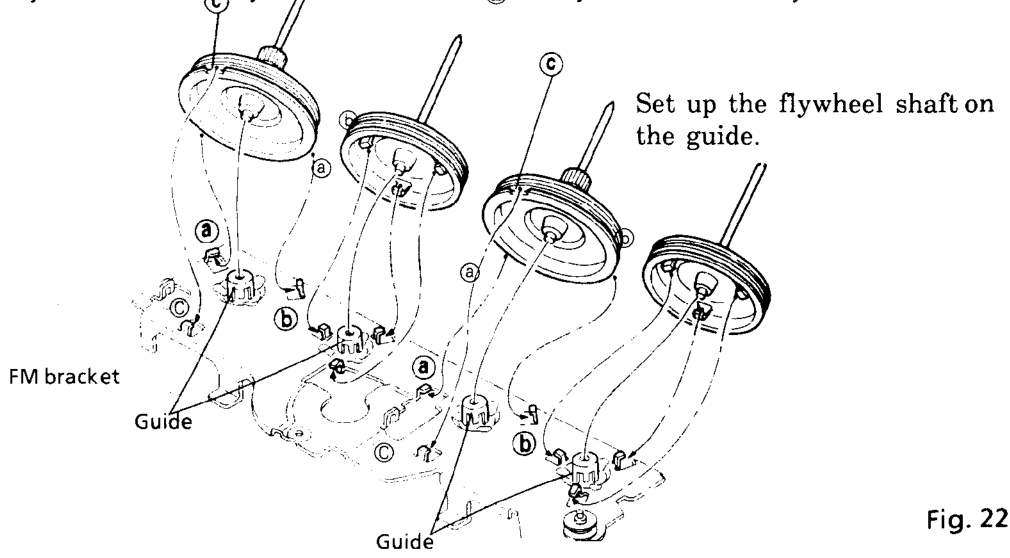

Switch PCB
Ⓛ
Capstan motor
Hook
Bracket
Ⓛ
Ⓛ
Flywheel A
Flywheel B
Ⓛ
Flywheel A
Flywheel B

Fig. 22-A


ⓒ
ⓐ
ⓑ
FM bracket
Guide
Guide

Set up the flywheel shaft on the guide.

Fig. 22-B

(20) How to install the belts

1. Install the flywheels and belts as shown in the figure below. (Fig. 23)
   When putting the belts, put the long belt first.
2. Install the main reels to put the belts on the flywheels.

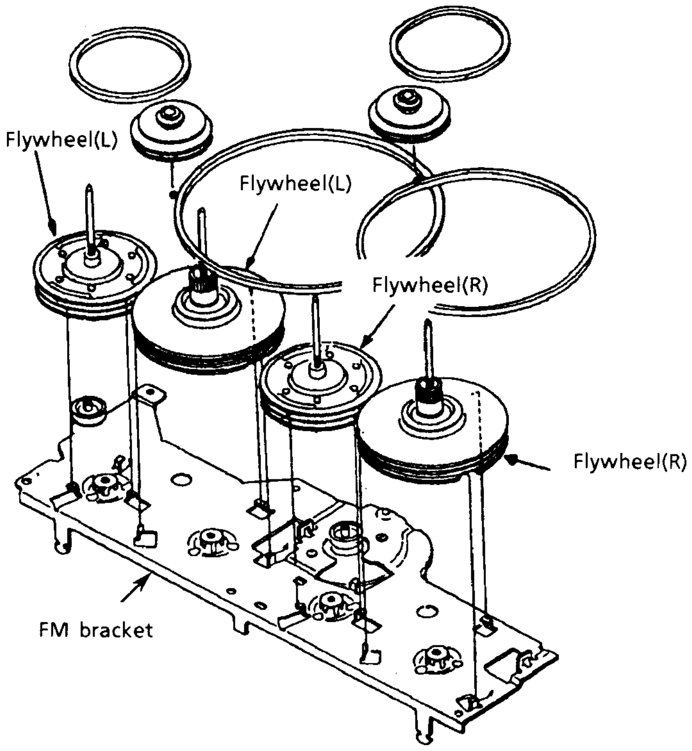

Flywheel(L)
Flywheel(L)
Flywheel(R)
Flywheel(R)
FM bracket

Fig. 23-A Install the Bracket and flywheels

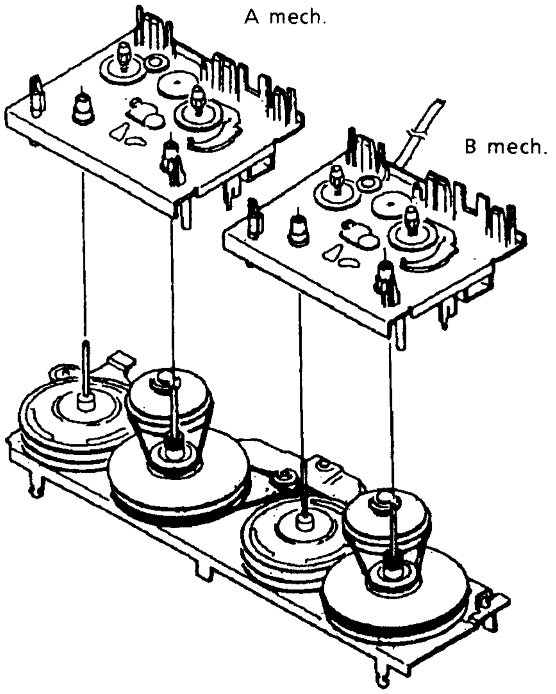
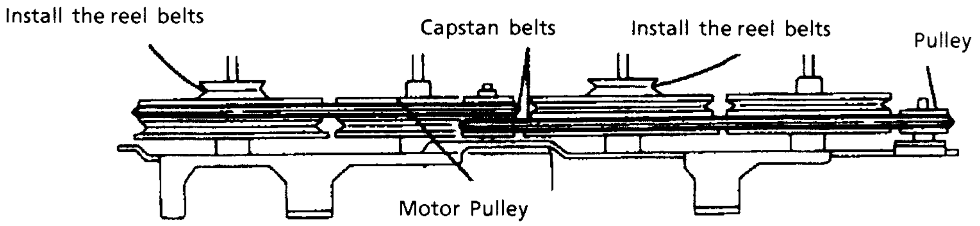
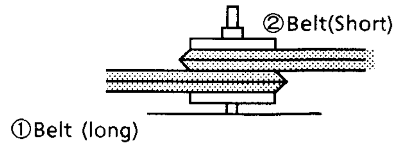

A mech.
B mech.

Fig. 23-C Install the cassette mech.


Install the reel belts
Capstan belts
Install the reel belts
Pulley
Motor Pulley

REEL BELTS → After hooking reel belts, no twist.


②Belt(Short)
①Belt (long)

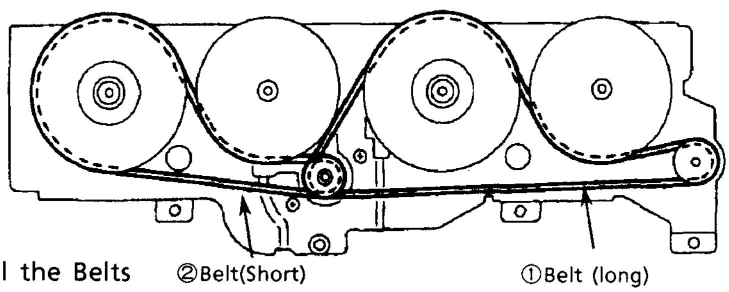
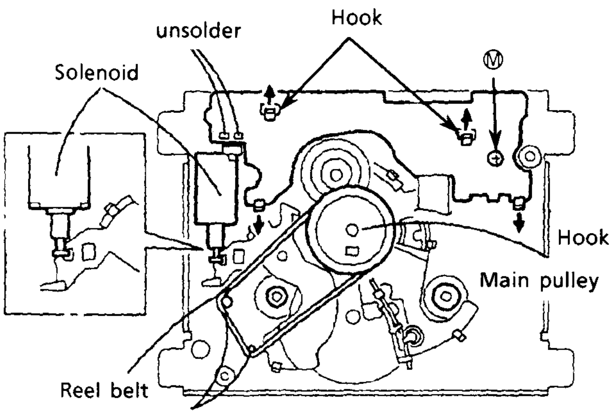

②Belt(Short)
①Belt (long)

Fig. 23-B Install the Belts

(21) Switch PCB removal

1. Remove the flywheel.
2. Remove the 1 screw Ⓜ .
3. Unsolder the broken solenoid.
4. Release the 4 hooks holding the Switch PCB.
5. Remove it.


unsolder
Hook
Solenoid
Ⓜ
Hook
Main pulley
Reel belt

When attach the FM bracket,
Install the reel belt on the stud
(See fig. 23)

Fig. 24

(22) Control cam removal

1. Remove the FM bracket and flywheel.
2. Pull out the main pulley .
3. Remove the trigger arm.
   While opening the two tabs ⓐ under the trigger arm, pull out the trigger arm from the shaft.
4. Pull out the elevator ring.
5. Remove the FWD/REV arm assembly.
   a. Remove the FWD/REV arm spring.
   b. While opening the four FWD/REV arm retaining tabs ⓑ outwards, pull out the FWD/REV arm.
6. Pull out the control cam.
   While pulling the shaft stopper section of the control cam in the central direction, pull out the control cam.

When attaching the control cam

While pressing the FWD/REV arm in the direction of the sorrow, pull the head the front.

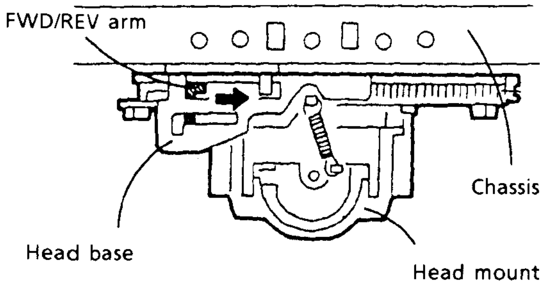
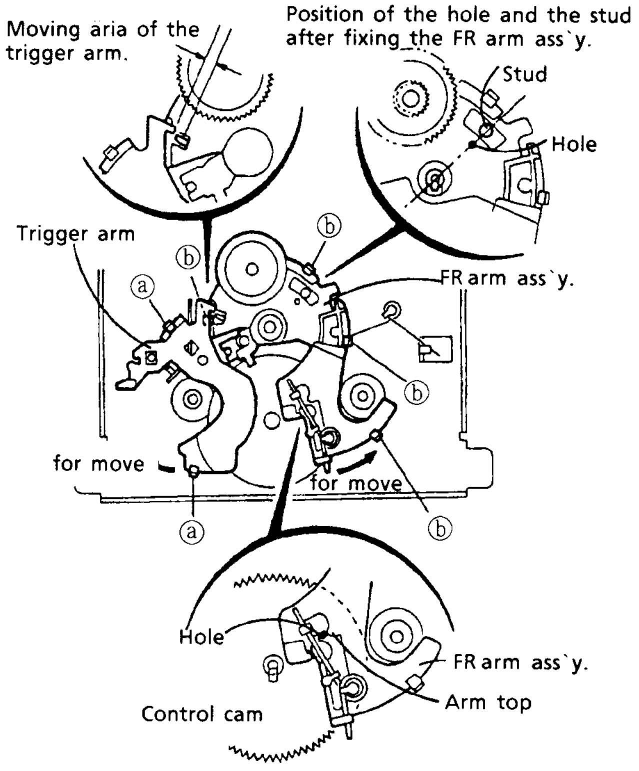

FWD/REV arm
Chassis
Head base
Head mount

Fig. 25-c


Moving aria of the trigger arm.
Position of the hole and the stud after fixing the FR arm ass'y.
Stud
Hole
Trigger arm
ⓑ
ⓑ
ⓐ
FR arm ass'y.
ⓑ
for move
for move
ⓐ
ⓑ
Hole
FR arm ass'y.
Control cam
Arm top

Position of the hole of cam and top of the arm after fixing the FR arm ass'y.

Fig. 25-a

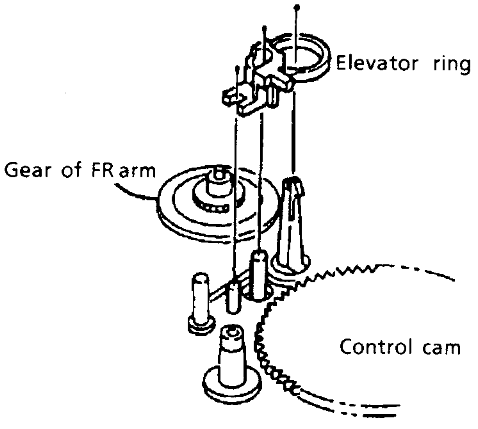

Elevator ring
Gear of FR arm
Control cam

Fig. 25-b

After preforming the procedure shown above, the studs under the control cam move as shown.

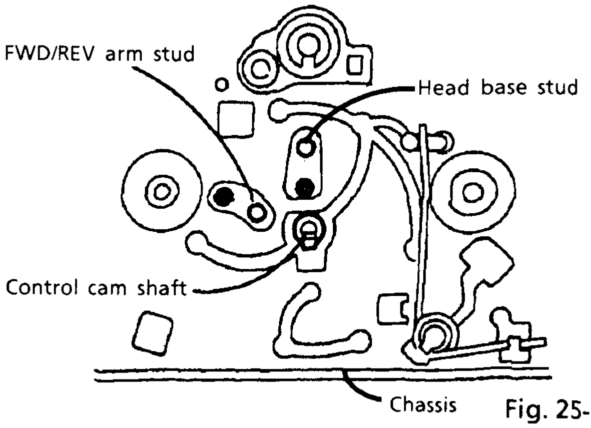
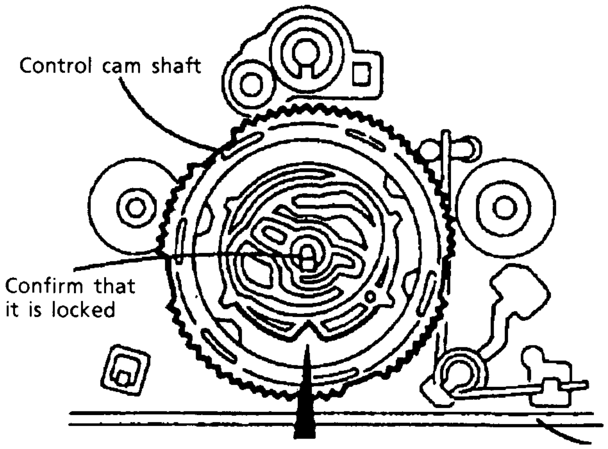

FWD/REV arm stud
Head base stud
Control cam shaft
Chassis

Fig. 25-d

(23) How to assemble

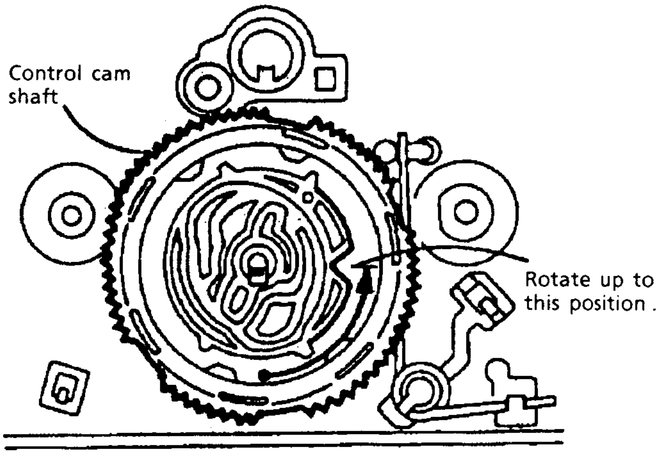
1. Move the FWD/REV arm in the direction of the arrow.
2. In step 1, pull the head base forward.
3. In step 2, after inserting the cam into the shaft, move the head base and FWD/REV arm slightly until the cam is fully inserted and it clicks to inform when it has been locked.
4. Rotate the cam counterclockwise to check if the cam rotates smoothly and the spring clicks according to the forward/backward movement of the head base.
5. After checking the rotation of the cam, rotate the cam until the notch section comes to the right so that the FWD/REV arm assembly can be attached.
6. Attach the FWD/REV arm assembly while observing the positioning of:
    the hole and stud
    the cam hole and arm edge
   shown in the figure 25-a.
   After attachment, move the FWD/REV arm in the direction of the arrow to check if it moves back to the original position.
7. Attach the elevator ring.
8. Attach the trigger arm.
   After attachment, move the trigger arm in the direction of the arrow to check if it moves back to the original position.

Working confirmation:
If the control cam rotates counterclockwise ,the assembly was successful: if it does not rotates. It must be reassembled.



Fit the control cam its notch located as shown. (Engage with the gear of the control cam while moving the FWD/REV arm and head base slightly.)

Fig. 26-a



Attach the FWD/REV arm with the control cam rotated up to the position shown.

Fig. 26-b

CD Changer mech. Ass'y removal

(24) CD Tray assembly removal

1. Disassemble the changer mech..
2. Remove the screw Ⓒ holding the stopper bracket.(See Fig.27) ---- (U.S.A only)
3. Remove the rod from both ends' hooks which are secured on T.Bracket ⓐ and clamper baseⓑ. [See Fig. 27)
4. Remove 3 screwsⓁ securing T.Bracket.(See Fig. 29.)
5. Remove a screw Ⓝsecuring center of the clamper ass'y. (See Fig. 28)
6. Remove the clamper ass'y from ★ screw fixing side.
7. Remove a screw Ⓛwhich secures the return spring and lock levers from the chassis ass'y.(See Fig. 30.)
8. Remove 2 pallsⓓ which slightly secure the return spring to remove it.
9. Remove 3 lock levers.
10. Check that the lifter unit stopper is inserted into hole ⓔ located on CD tray ass'y. (See Fig. 31.)
11. Check that the driver unit elevator is seen from a hole (marked ⑤) on left side of the CD changer mech..(See Fig. 32 and 33.)
    [NOTE] Set the elevator in correct position (Fig. 33) by rotating the pulley gear with finger if it is not positioned correctly (Fig. 34.).
12. Rotate the motor pulley clockwise with finger until the lifter unit's stopper is lowered from ⓔhole located on the CD tray ass'y. (See Fig. 34.)
13. And, pull all 3 CD tray assemblies forward until they stop. (See Fig. 32.)
14. Press 2 pawls (f, f') located rear side of the CD tray ass'y according to an arrowⓗ to remove the CD tray ass'y. (See Fig. 35.)
    At first, removing the lowest tray is easier.

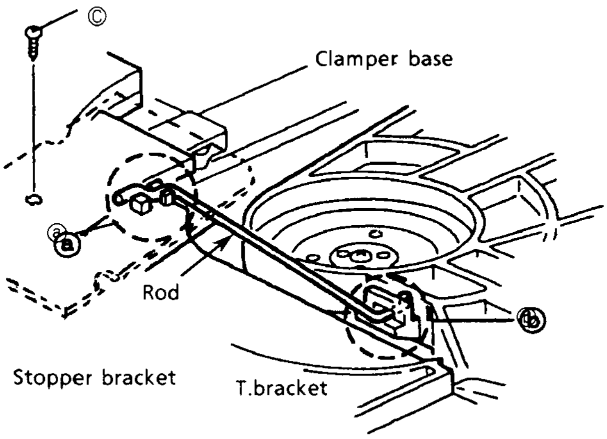


Fig. 27

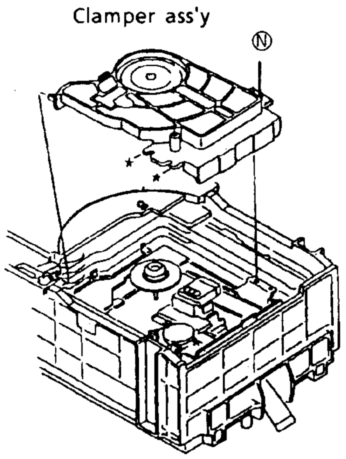


Fig.28

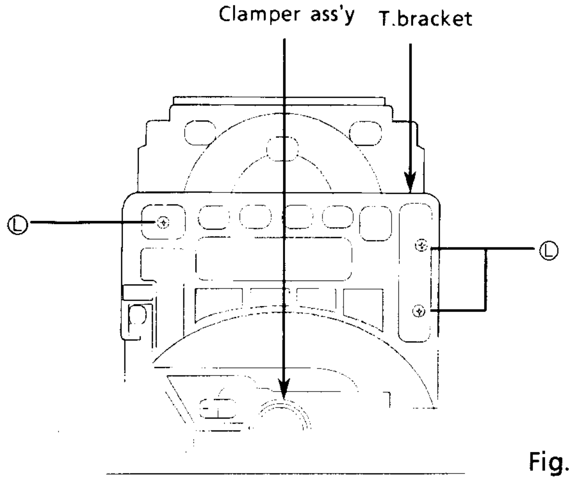


Fig.29

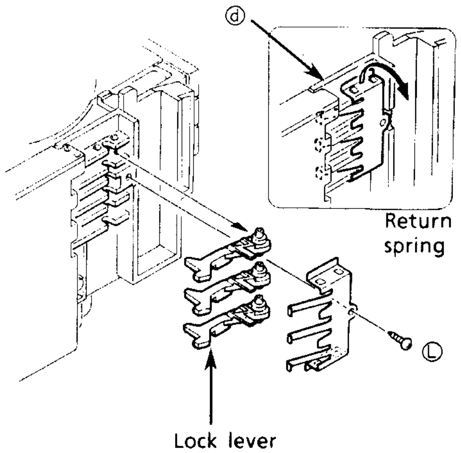


Fig.30

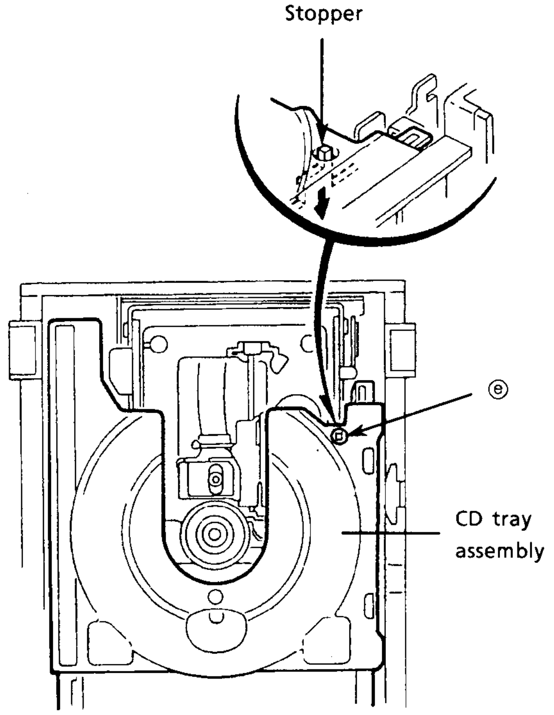

Stopper
ⓔ
CD tray assembly

Fig. 31

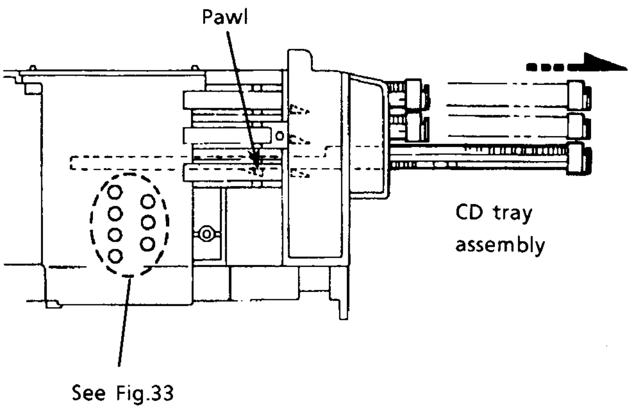

Pawl
CD tray assembly
See Fig.33

Fig. 32

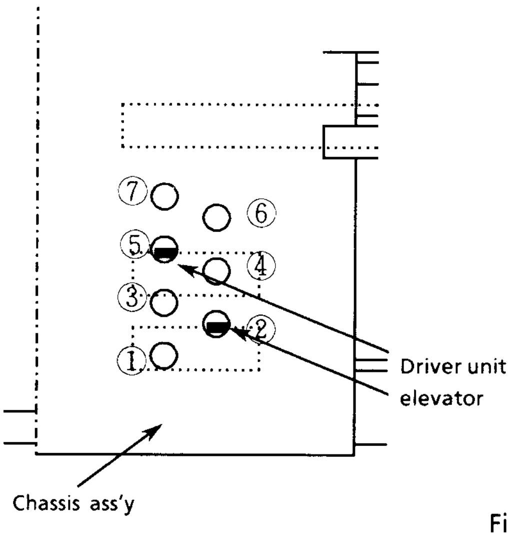

⑦
⑥
⑤
④
③
②
①
Driver unit elevator
Chassis ass'y

Fig. 33

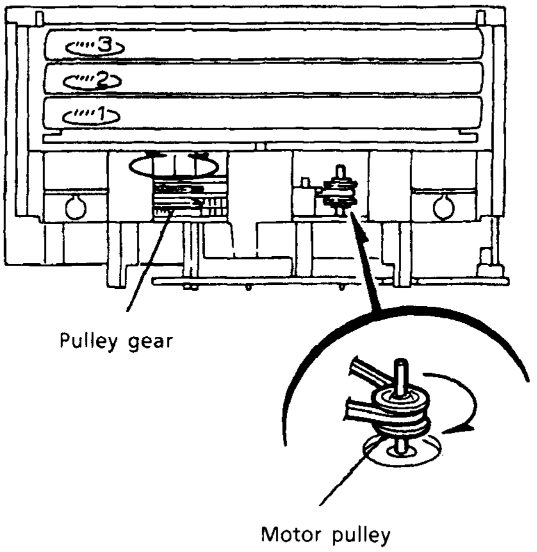

3
2
1
Pulley gear
Motor pulley

Fig. 34

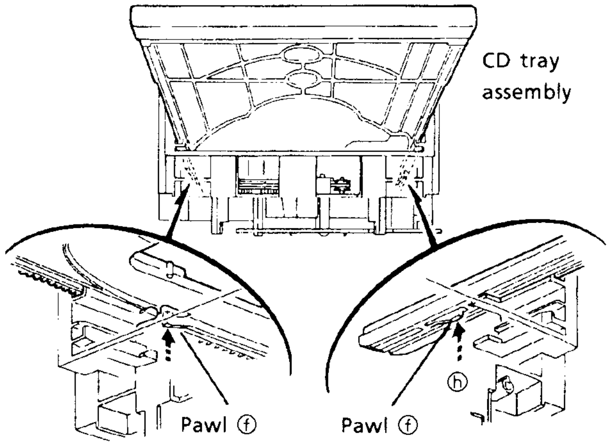

CD tray assembly
ⓗ
Pawl ⓕ
Pawl ⓕ

Fig. 35

(25) CD mechanism removal

1. Remove the CD tray ass,y .
2. Rotate the Cam R1, R2 ass'y counterclockwise so that CD mech. ass'y's shaft ⓗ is positioned as shown in Fig. 36.
3. Remove 4 screws Ⓙ securing CD mech. ass'y. (See Fig. 36.)

*How to replace pick-up unit
1. If CD mech. is removed without disassembling CD mech. ass'y, rotate the Cam R1, R2 ass'y clockwise to set the CD mech. ass'y's shaft(L) as shown in Fig. 37.
2. Lift the CD mech. ass'y toward the direction ⓘ to remove it from the lifter unit. (See Fig. 38.)

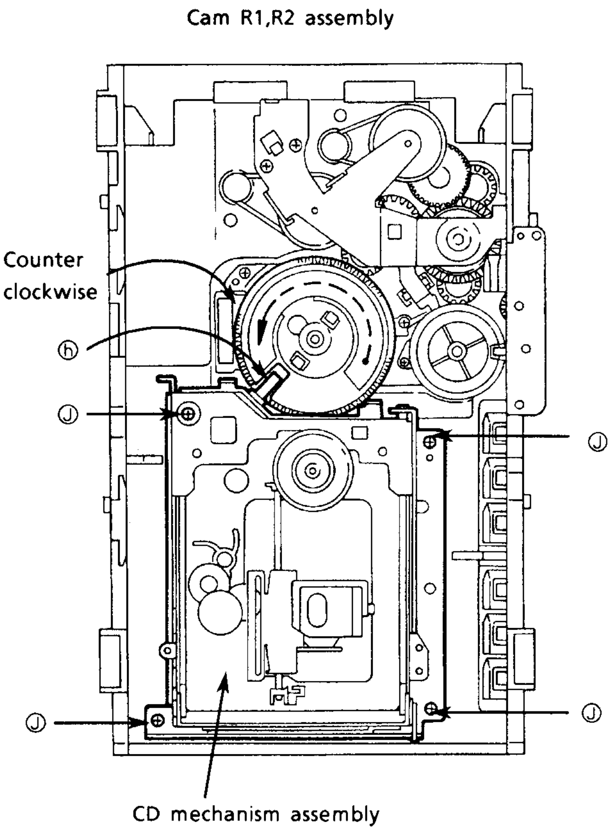

Cam R1,R2 assembly
Counter clockwise
ⓗ
Ⓙ
Ⓙ
Ⓙ
Ⓙ
CD mechanism assembly

Fig. 36

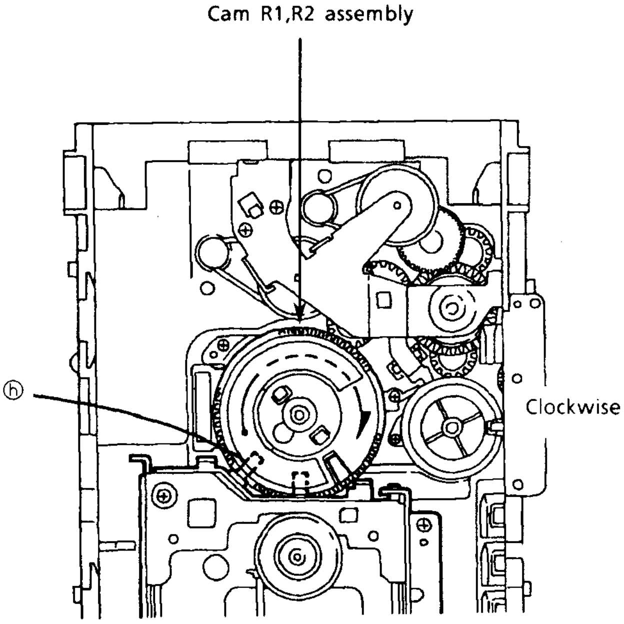

Cam R1,R2 assembly
ⓗ
Clockwise

Fig. 37

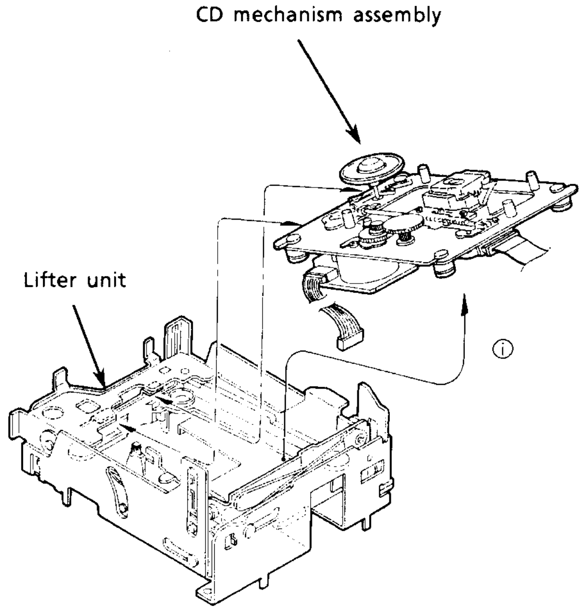

CD mechanism assembly
Lifter unit
ⓘ

Fig. 38

(26) Actuator motor board removal

1. Unsolder 4 soldered point Ⓘ for both motors. (See Fig. 39.)
2. Remove a screw Ⓒ securing the CD servo board. (See Fig. 39.)
3. Press the hook and release it to remove the CD servo board.
4. Remove 2 screws Ⓙ securing the actuator motor board. (See Fig. 39.)
5. Remove 2 screws Ⓙ securing the tray select switch board. (See Fig. 40.)

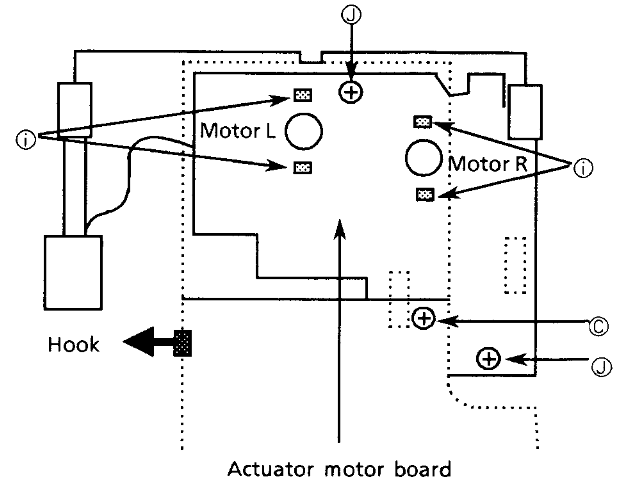

Ⓙ
Ⓘ
Motor L
Motor R
Ⓘ
Hook
Ⓒ
Ⓙ
Actuator motor board

Fig. 39

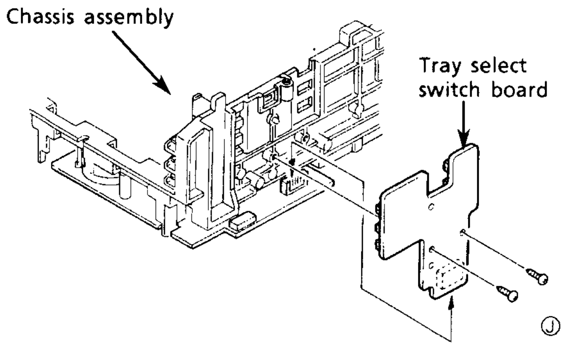

Chassis assembly
Tray select switch board
Ⓙ

Fig. 40

(27) Cam unit removal

1. Disassemble CD mech. ass'y.
2. Rotate the Cam gear L so that the drive unit's pole Ⓚ is positioned as shown in Fig. 41.
3. Remove the drive unit and cylinder gear. (See Fig.42.)
4. Rotate the Cam gear L so that the select gear's Ⓙ is positioned as shown in Fig.43.
5. Remove 4 screws Ⓙ securing the cam unit which includes the cam gear L and Cam R1, R2 ass'y. (See Fig 43.)

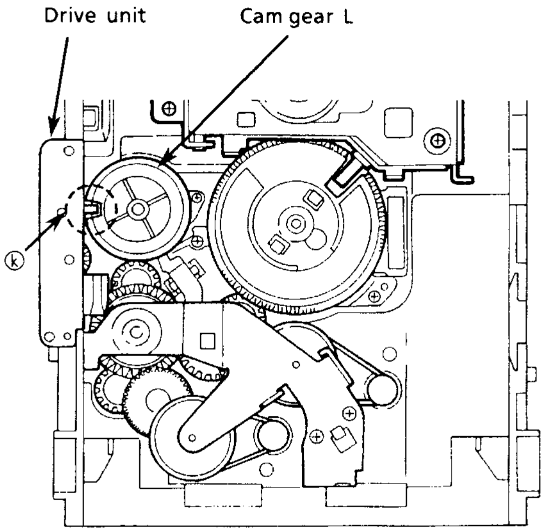

Drive unit
Cam gear L
Ⓚ

Fig. 41

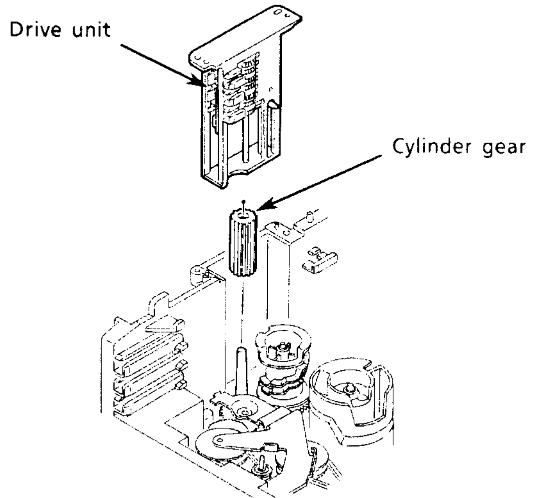

Drive unit
Cylinder gear

Fig. 42

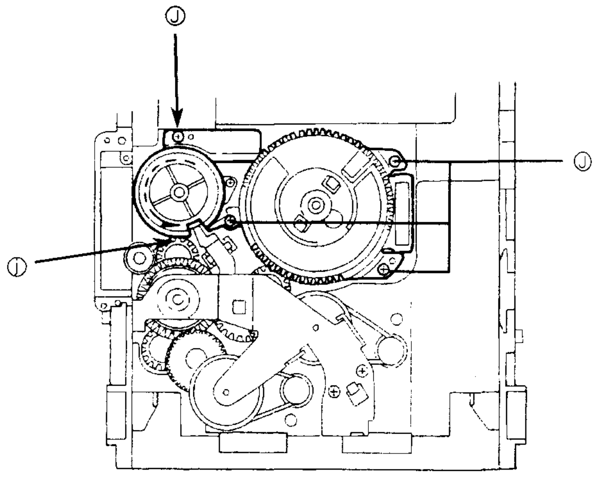


Fig. 43

(28) Removal for actuator motor and belt

1. Remove 2 screws ⓟ securing the gear bracket. (See Fig. 44.)
2. Press the pawl Ⓜ securing the gear bracket to the arrow in the figure to remove the gear bracket. (See Fig. 44.)
3. Remove the gear bracket from the chassis ass'y's ⓝ securing top of the gear bracket. (See Fig. 45.)
4. Remove each belts from the both actuator motor pulleys and the pulley gears. (See Fig.44.)
5. Reverse the chassis ass'y and widen 4 poles ⓞ which secure both actuator motors to its arrows to remove the actuator motors. (See Fig.46 .)

[NOTE] The pulley gears and other gears which consist the gear unit may drop separately if the chassis ass'y is reversed without gear bracket and belt. See Fig. 47 to assemble them again.

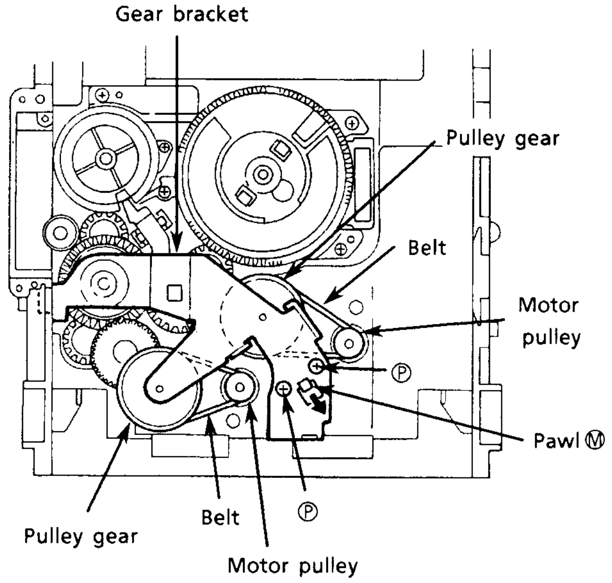

Gear bracket
Pulley gear
Belt
Motor pulley
Ⓟ
Pawl Ⓜ
Pulley gear
Belt
Ⓟ
Motor pulley

Fig. 44

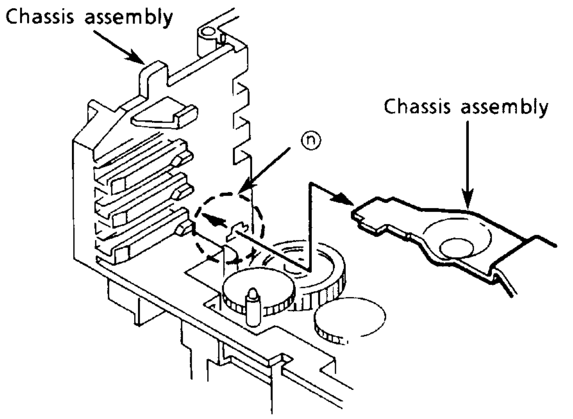

Chassis assembly
ⓝ
Chassis assembly

Fig. 45

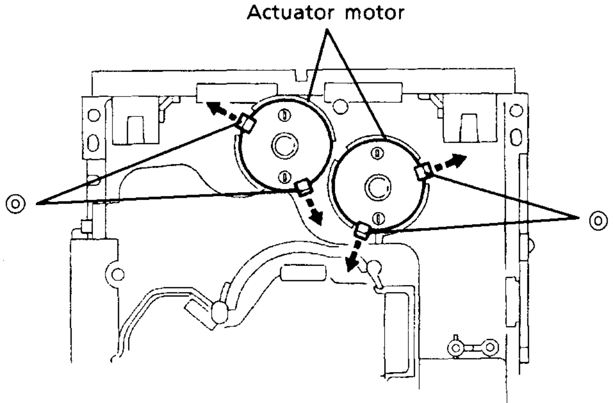

Actuator motor
ⓞ
ⓞ

Fig. 46

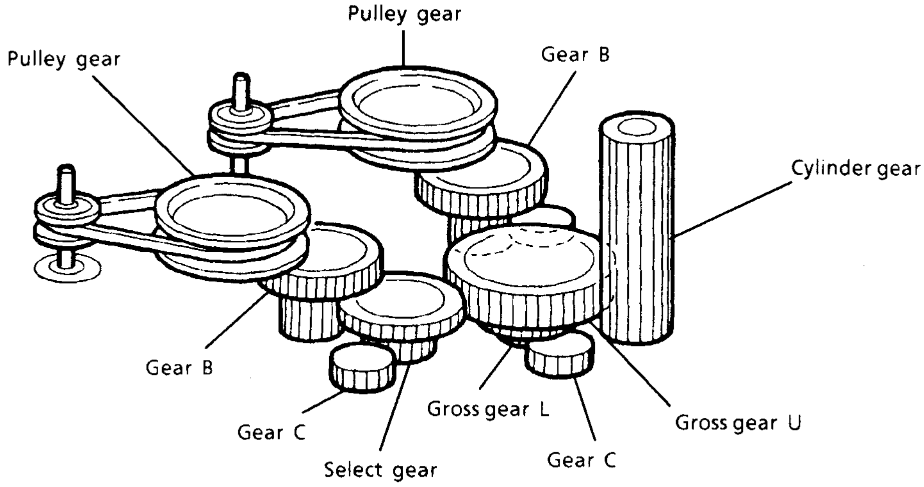

Pulley gear
Pulley gear
Gear B
Cylinder gear
Gear B
Gear C
Select gear
Gross gear L
Gear C
Gross gear U

Fig. 47

(29) Removal of cam R1, R2 ass'y and cam gear L

1. Remove the slit washer securing Cam R1, R2 ass'y.
   (See Fig. 48.)
2. Remove 2 poles Ⓟ securing Cam R1 to remove Cam R2 from Cam R1.
3. Remove the slit washer securing Cam gear L.
4. Remove Cam gear L from the C.G. base ass'y.

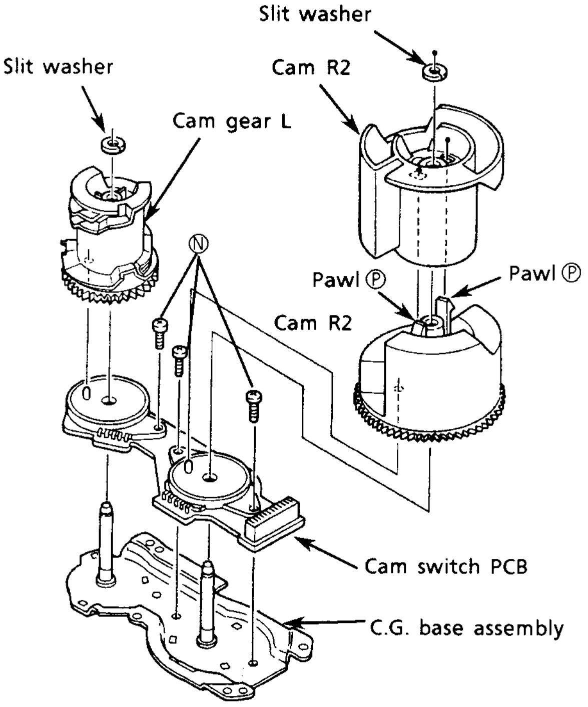

Slit washer
Slit washer
Cam R2
Cam gear L
Ⓝ
Pawl Ⓟ
Pawl Ⓟ
Cam R2
Cam switch PCB
C.G. base assembly

Fig. 48

(30) Removal of C.G. base ass'y

Remove 3 screws Ⓝ securing the C.G. base ass'y. (See Fig. 48 and 49.)

[NOTE] Set the drive unit's pawl Ⓡ so that it is positioned as shown in Fig. 49.
Confirm that the cam gear L engages with the gear unit by rotating the cam gear L.

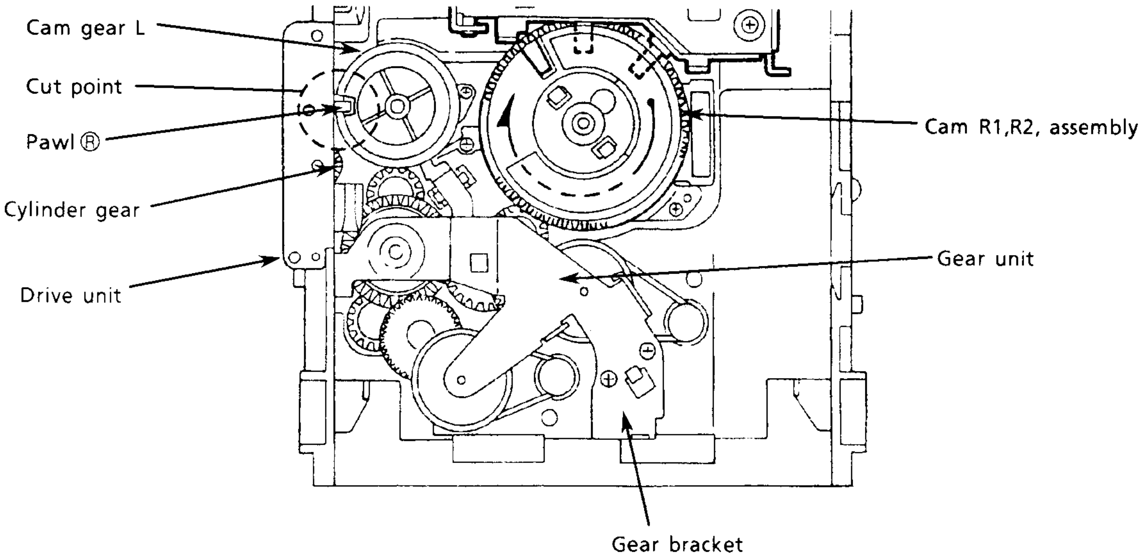

Cam gear L
Cut point
Pawl Ⓡ
Cylinder gear
Drive unit
Cam R1,R2, assembly
Gear unit
Gear bracket

Fig. 49

(31) Removing the Pickup

1. Remove the CD mech. assembly.
2. Release the shaft to remove the pickup.

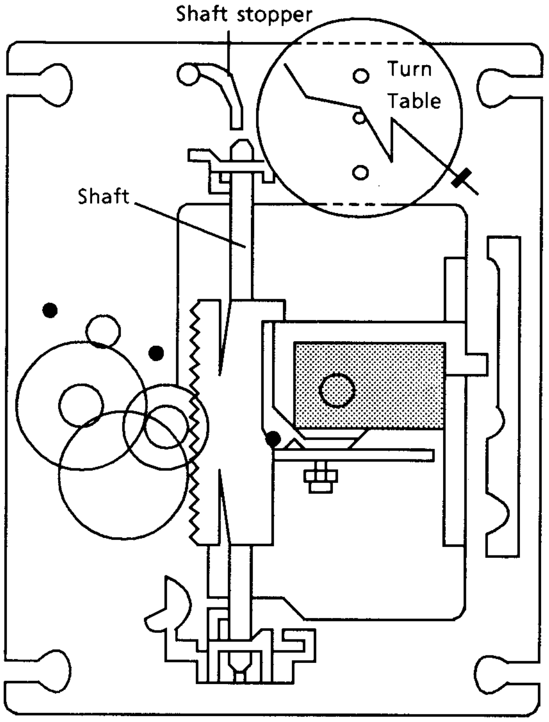


Fig. 50

(32) Spindle motor installation

1. Tighten the 2 screws to the same torque.
2. Fasten the spindle and feed motor P.C. board with the screw and solder.
3. Install the turntable.When installing, press straight down at the center of the turntable until the distance from the surface of the mech. base to the turntable is exactly 19.4±0.1mm.

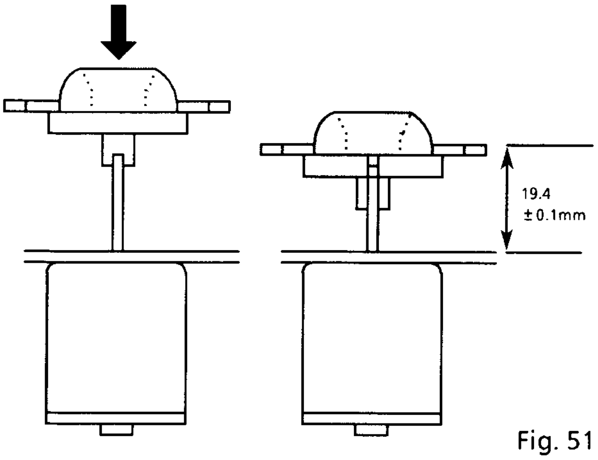


Fig. 51

(33) Removing the Spindle motor

1. Remove the CD mech. assembly.
2. Remove the turntable, and remove the 2 screws ⊗ retaining the spindle motor.
3. Remove the screw retaining the spindle and feed motor circuit board and unsolder it.

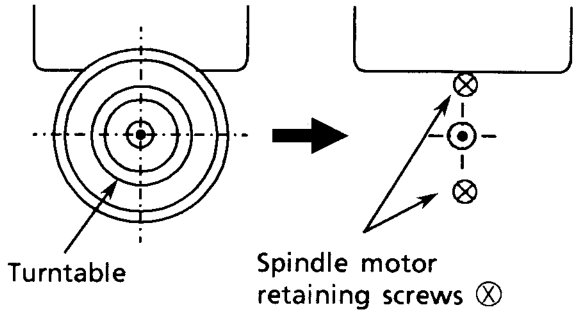


Fig. 52

(34) After inserting the turntable, bond the motor shaft and turntable together (at the section marked by an arrow in fig 53 on the left below).

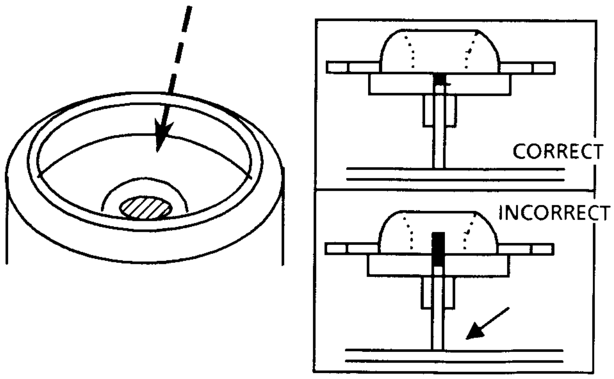


Fig. 53

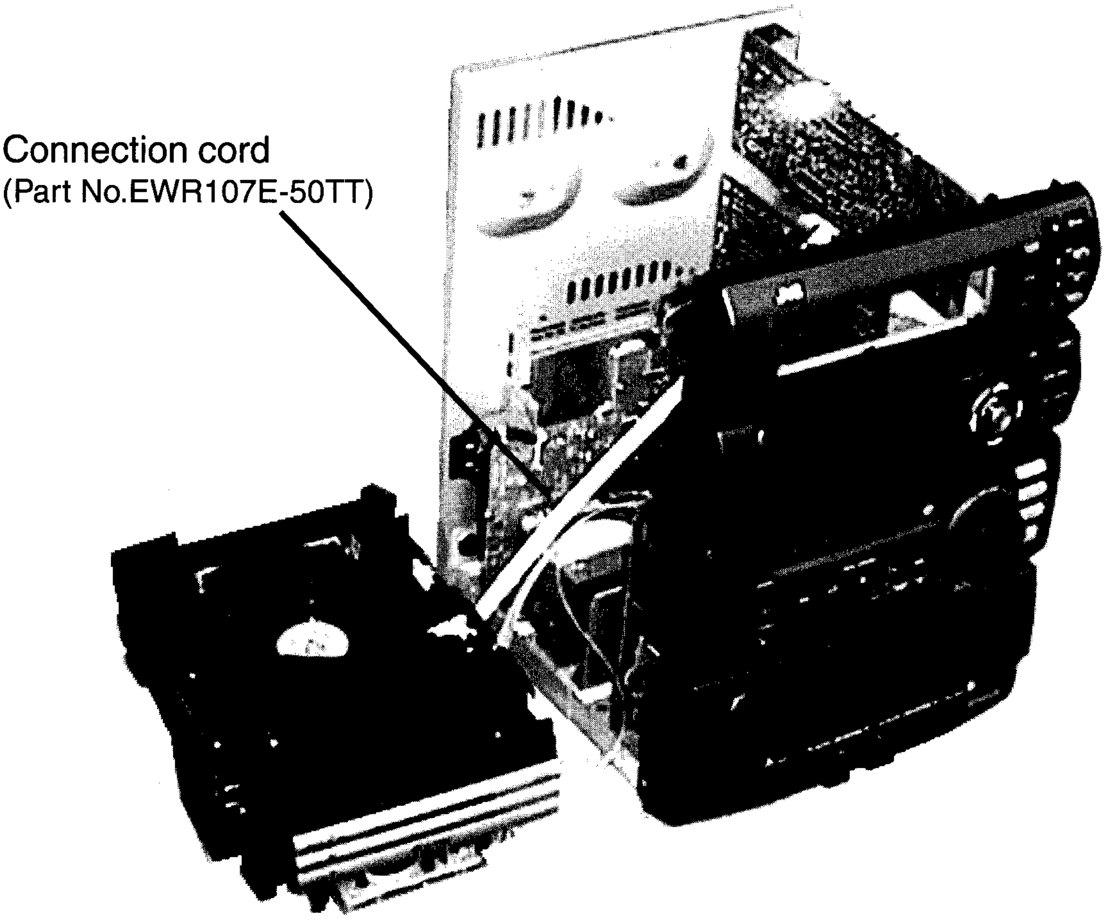
(35) Use "LOCKTITE" #460 bonding agent, and apply as little as possible.

Take care not to allow any excess bonding agent to get onto the turntable.

Be extremely careful not to allow bonding agent to adhere to the motor bearing (the section marked by an allow in fig. 53 on the right).

Connected an extension cord

1.Remove the CD changer mechanism ass'y.
2.Disconnect the 7pin wire from the CN613(Source selector & SEA P.C.B)and disconnect the 7pin wire.
3.Connected the extension cord CN603 to CN613.


Connection cord
(Part No.EWR107E-50TT)

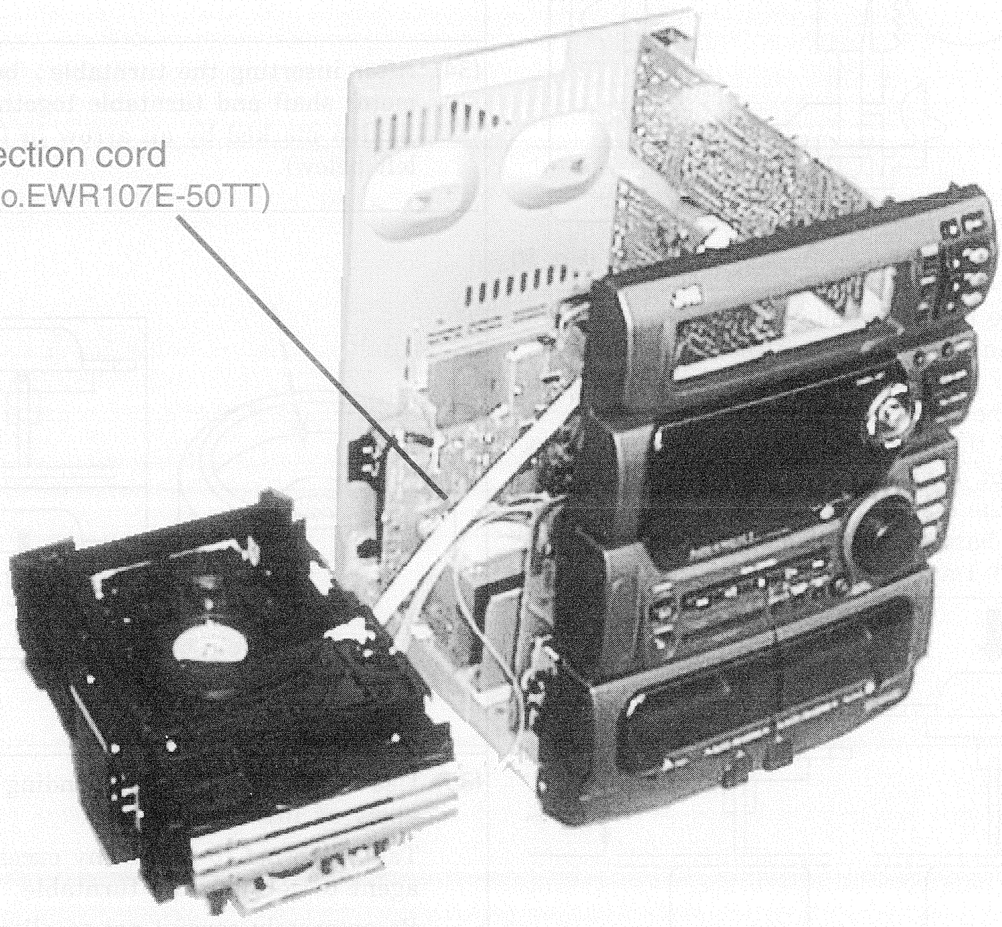
Changer mechanism Ass'y

Connected an extension cord

1.Remove the CD changer mechanism ass'y.

2.Disconnect the 7pin wire from the CN613(Source selector & SEA P.C.B)and disconnect the 7pin wire.

3.Connected the extension cord CN603 to CN613.



Connection cord
(Part No.EWR107E-50TT)

Changer mechanism Ass'y

Adjustment procedures

■ Tuner section

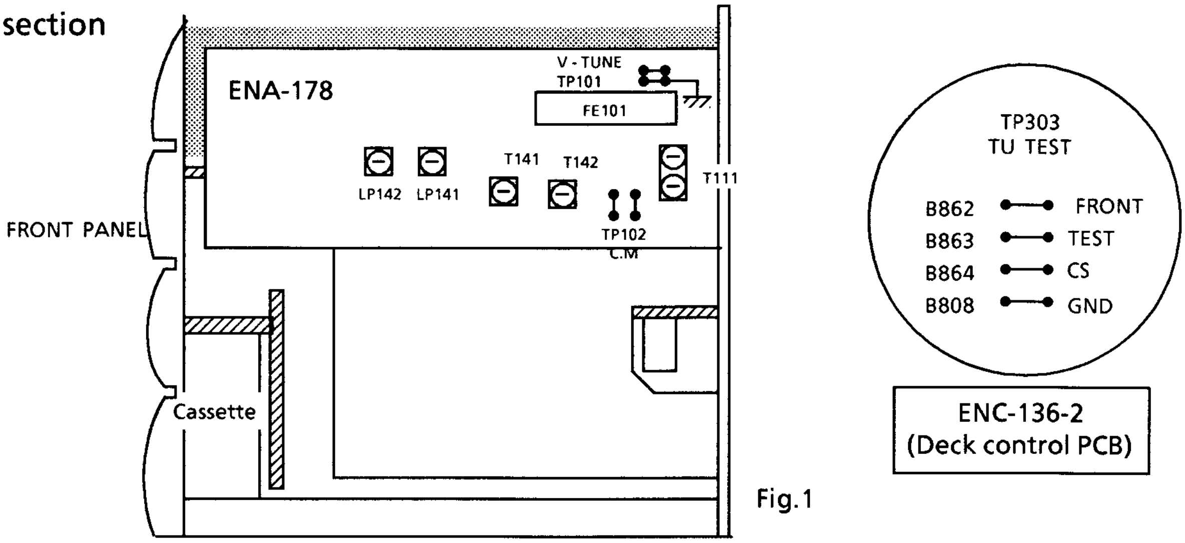

ENA-178
V-TUNE
TP101
FE101
T141
T142
LP142
LP141
T111
TP102
C.M
FRONT PANEL
Cassette
TP303
TU TEST
B862 FRONT
B863 TEST
B864 CS
B808 GND
ENC-136-2
(Deck control PCB)

Fig.1

Clock Adjustment

1. After connecting B863 and B864 with some wire as shown in the figure below, connect the AC power cord into an AC outlet.
2. Confirm that the display is off and remove the wire.
3. Connect a frequency counter to TP303 B262 and B808.
4. Confirm the frequency 50000±0.29Hz.

Tuning range

Area	Range		
	LW (kHz)	MW (kHz)	FM (MHz)
Continental Europe, the U.K	144~288	522~1629	
Universal type (AM Channel space 9kHz)	—	531~1602	
Universal type (AM Channel space 10kHz)	—	530~1600	
U.S.A,CANADA	—	530~1710	

(1) Tuning voltage

Confirm the voltages at TP101 is within the standard values shown in the table below. If the voltages are not satisfied, replace T111 for MW 5or FE101 for FM.

FM Tuning voltage (Unit : V)

Area	Frequency	
	87.5MHz	108MHz
the U.K., Continental Europe, Universal U.S.A & CANADA	1.3 〈	9.0 〉

AM Tuning voltage (Unit : V)

Area	Frequency (MW)							Frequency (LW)	
	522KHz	530KHz	531KHz	1600KHz	1602KHz	1629KHz	1629KHz	144kHz	288kHz
the U.K., Continental Europe	0.8 〈	—	—	—	—	〈 9.0	—	0.8 〈 1.0	6.5 〈 9.0
Universal (Channel space 9kHz)	—	—	0.8 〈	—	8.0 〈	—	—	—	—
Universal (Channel space 10kHz)	—	0.8 〈	—	8.0 〈	—	—	—	—	—
U.S.A,CANADA	—	0.8 〈	—	—	—	—	〈 9.0	—	—

(2) FM center meter

Receive a broadcast which understanding the frequency by using the function of 'MANUAL SEARCH'. Adjust T141 (detector coil) so that the voltage at TP102 becomes 0±1.5mV.

■ Deck Adjiust point

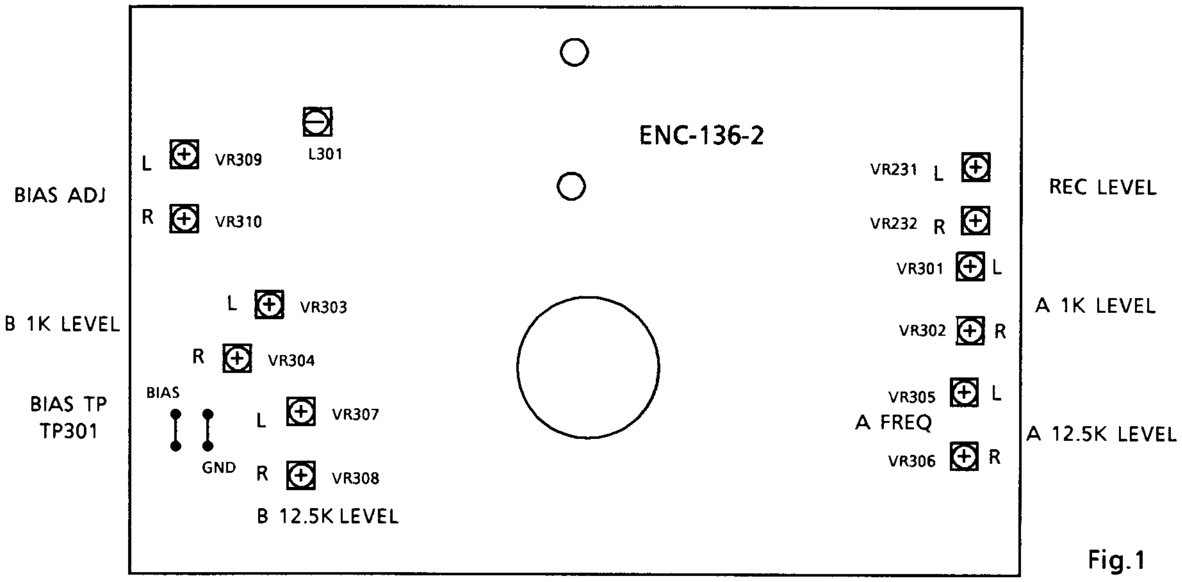
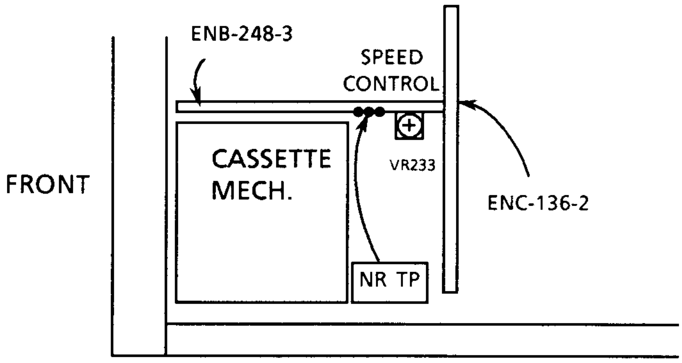
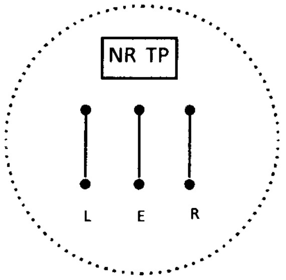

BIAS ADJ
L VR309
R VR310
L301
B 1K LEVEL
L VR303
R VR304
BIAS TP
TP301
BIAS
GND
L VR307
R VR308
B 12.5K LEVEL
ENC-136-2
VR231 L
VR232 R
REC LEVEL
VR301 L
VR302 R
A 1K LEVEL
VR305 L
A FREQ
VR306 R
A 12.5K LEVEL

Fig.1


ENB-248-3
SPEED
CONTROL
FRONT
CASSETTE
MECH.
VR233
ENC-136-2
NR TP



Speed Control PCB Fig.2

Deck section

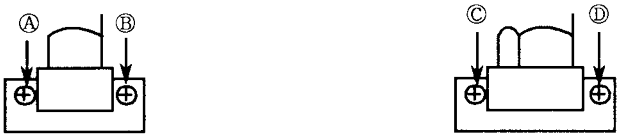
1. Measuring instruments

Audio frequency signal generator (0dbs output at the 600 ohm output terminal from 50Hz to 20KHz)
Electronic voltmeter
Frequency counter
Wow & Flutter meter
Distortion Meter with band pass filter
Attenuator (600 ohm impedance)
A resistor with 600Ω

Tape No.	Frequency	Level (Wow & Flutter)	Purpose
VTT-703L	10kHz	- 10dBs	Head azimuth , Frequency Response
VTT-712	3000Hz	0dBs 0.025%WRMS	Tape Speed , Wow & Flutter
VTT-724	1kHz	- 4dBs	Standard Level
TMT-6447	–	–	Blank Skip
TMT-6247 , TMT-6237	–	–	Music Scan
TMT-7088S	–	–	Recording standard Normal : UR
AC-712	–	–	Recording standard METAL :MA
AC-513	–	–	Recording standard CrO_2 : SA
TW-2111, TW-2121	–	–	Forward / reverse play torque measuring
TW-2231	–	–	Feed forward / rewind torque measuring
C-120 Tape	–	–	Confirming the tape running

2.Adjustment and repairing the mechanism

Item	Adjustment method	Standard value	Remarks
Head azimuth	Deck A 1. Connect an electronic voltmeter to the NR TP901(figure 2) to playback VTT-703L. 2. Adjust screw Ⓐ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed. 3. Adjust screw Ⓑ so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed. Deck B 4. Adjust screw Ⓒ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed. 5. Adjust screw Ⓓ so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed. 6. After making the adjustment,apply screw lock to prevent screws Ⓐ , Ⓑ , Ⓒ and Ⓓ coming loose .	Maximum	1. **Refer to figure 3.** 2. When the specified characteristic cannot be obtained because of head wear, excessive magnetization, etc., replace the head assembly and adjust the head azimuth. Also, perform the electric adjustment. 3. When there is the difference of more than 3 ~ 4 dB between left and right output levels, replace the head assembly to avoid complaints.
Playback torque	1. Measure the torque in the playback mode by the torque meter.	26 ~ 72 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Fast forward torque	1. Measure the torque in the fast forward mode by the torque meter.	75 ~ 175 g-cm	When the standard torque cannot be obtained,replace the FR arm assembly or motor.
Rewind torque	1. Measure the torque in the rewind mode by the torque meter.	75~ 175 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Wow & flutter	1. Connect the wow & flutter meter to the DOLBY TP(figure 2) and play back VTT-712 . 2. Its reading should be within 0.25% (WTD).	Less than 0.25%	As a complaint may occur if the wow & flutter fluctuates by 0.1% even though it is allowed in the standard, repairing is required.



Deck A

Deck B

Fig.3

3. Electrical Adjustments (Make the following adjustments after adjusting the head azimuth.)

In principle, the adjustments should be made in the following sequence.
Set the NR switch to OFF and the BEAT CUT switch to "1".
Adjustments marked with an asterisk (*) should always be made after the head is replaced

0dBs = 0.775V

Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
Tape Speed	1. Connect a frequency counter to the NR TP 901 (figure 2) and play back VTT-712. 2. Adjust the semi-fixed resistor VR901 on ENH-292-1 (figure 2).	VR233	3,000 Hz ± 10Hz	Connect a wow & flutter meter with a built-in frequency counter to the speaker terminals.
* Standard level (Playback Level)	1. Connect an electronic voltmeter to the NR TP901(figure 2). Play back VTT-724 (1 kHz : −4dBs) to adjust the semi-fixed resistors.	**Deck A** L: VR301 R: VR302 **Deck B** L: VR303 R: VR304	488mV (−4dBs)	1) The playback level varies when the head is replaced so should be adjusted. Use an electronic voltmeter with an impedance of 100 kΩ or more.
* Playback Frequency Response	1. Connect an electronic voltmeter to the NR TP 901(figure 2). 2. Play VTT-703L (10kHz : −10dBs) and adjust semi-fixed resistors to obtain the standard values.	**Deck A** L: VR305 R: VR306 **Deck B** L: VR307 R: VR308	245mV (−10dBs)	—
* Recording Bias Frequency	1. Connect a frequency counter to the BIAS TP(figure 2), and perform a recording to adjust bias frequency.	L301	105 kHz ± 5 kHz	
* Record / Play Frequency Response (Bias current)	1. Supply 1kHz and 12.5kHz with 30mV signals to AUX terminals respectively to record them. 2. Connect an electronic voltmeter to the NR TP901 (figure 2) to confirm the recorded values. 3. If the values are not satisfied, adjust the semi-fixed resistors and record the signal again to confirm the recorded values.	L : VR309 R : VR310	0 ± 2 dB with 1 kHz as the standard.	**Refer to figure 4 below.** 1) The recording and playback frequency response of a cassette deck are adjusted by adjusting the bias. 2) Perform the adjustment with normal tape and confirm that the values are within the range for metal tape.

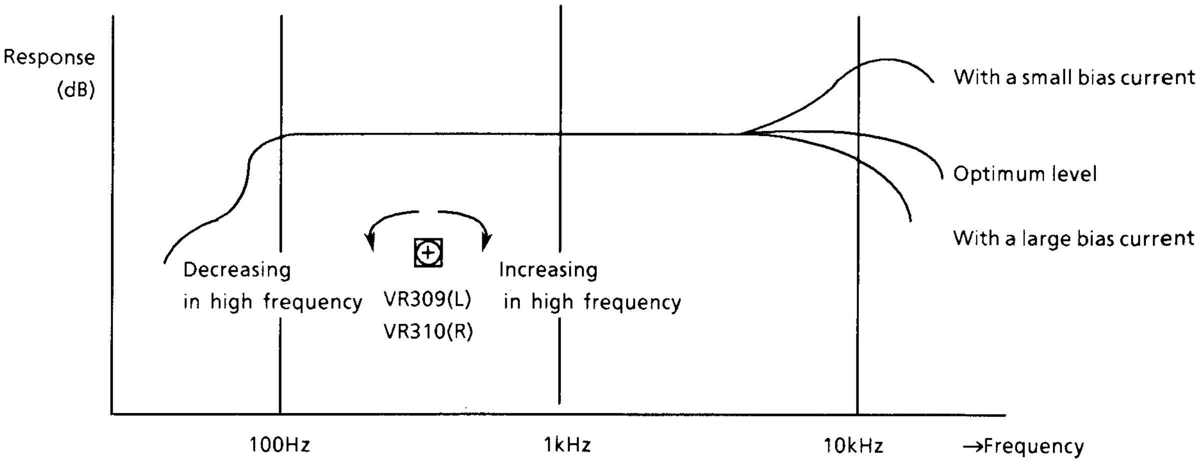
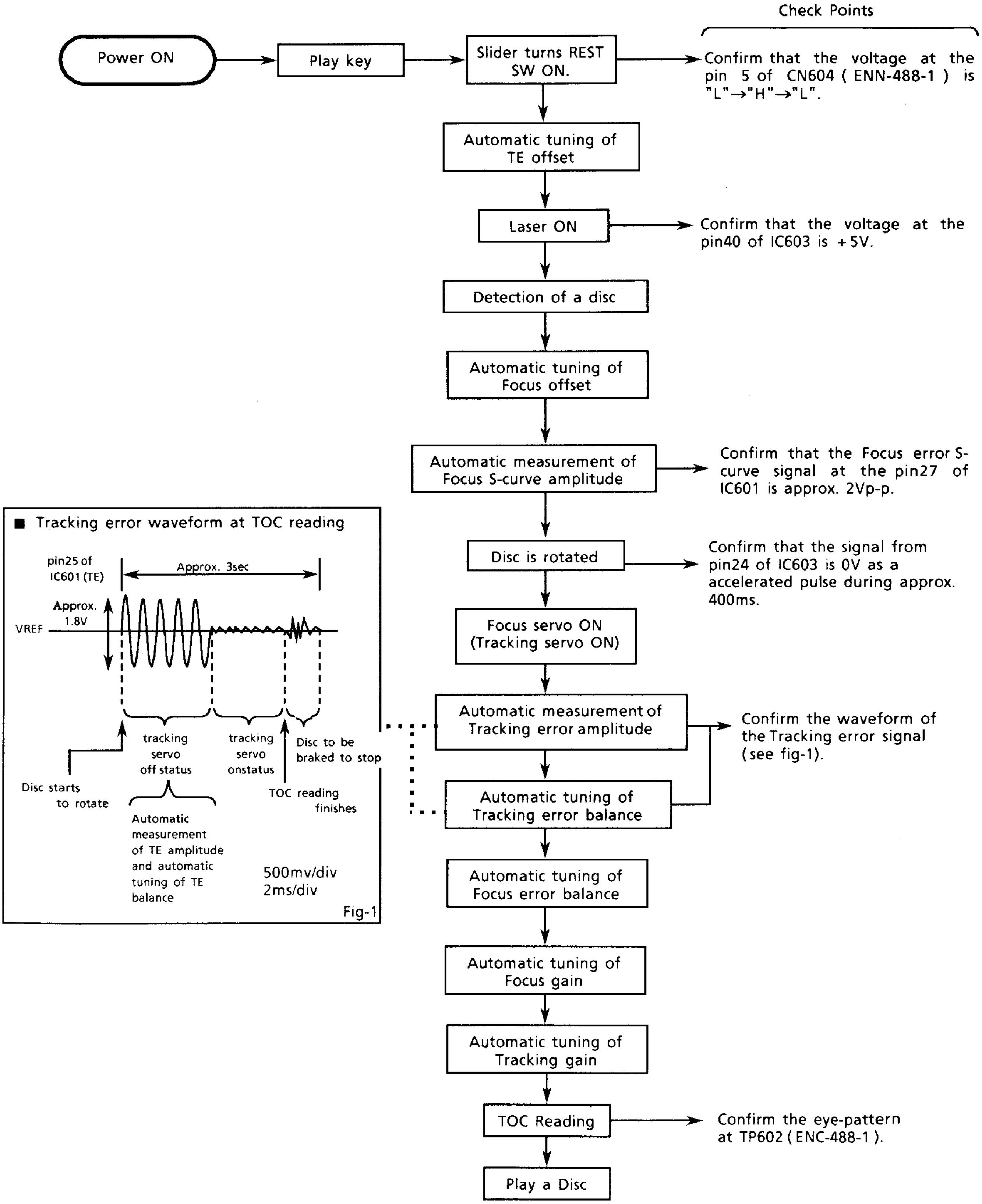


Fig.4

Flow of Functional Operation Until TOC is Read


Check Points
Power ON
Play key
Slider turns REST SW ON.
Automatic tuning of TE offset
Laser ON
Detection of a disc
Automatic tuning of Focus offset
Automatic measurement of Focus S-curve amplitude
Disc is rotated
Focus servo ON (Tracking servo ON)
Automatic measurement of Tracking error amplitude
Automatic tuning of Tracking error balance
Automatic tuning of Focus error balance
Automatic tuning of Focus gain
Automatic tuning of Tracking gain
TOC Reading
Play a Disc
■ Tracking error waveform at TOC reading
pin25 of IC601 (TE)
Approx. 3sec
Approx. 1.8V
VREF
tracking servo off status
tracking servo onstatus
Disc to be braked to stop
Disc starts to rotate
TOC reading finishes
Automatic measurement of TE amplitude and automatic tuning of TE balance
500mv/div
2ms/div
Fig-1

Confirm that the voltage at the pin 5 of CN604 (ENN-488-1) is "L"→"H"→"L".

Confirm that the voltage at the pin40 of IC603 is +5V.

Confirm that the Focus error S-curve signal at the pin27 of IC601 is approx. 2Vp-p.

Confirm that the signal from pin24 of IC603 is 0V as a accelerated pulse during approx. 400ms.

Confirm the waveform of the Tracking error signal (see fig-1).

Confirm the eye-pattern at TP602 (ENC-488-1).

Maintenance of Laser Pickup

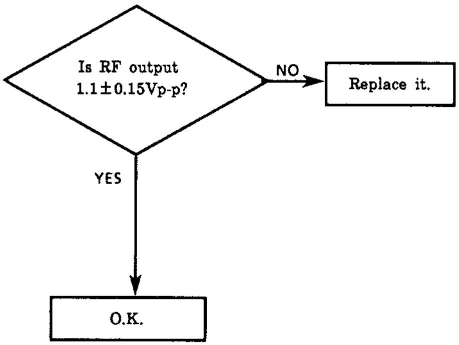
(1) Cleaning the pick up lens

Befor you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

(2) Life of the laser diode (Fig.1)

When the life of the laser diode has expired, the following symptoms will appear.

(1) The level of RF output (EFM output: ampli tude of eye pattern) will be low.



(Fig.1)

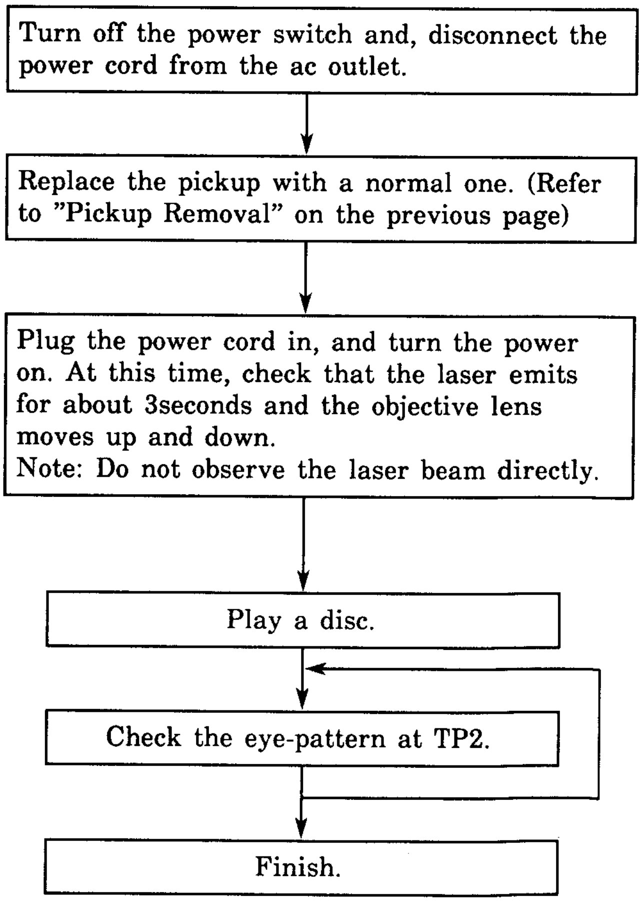
(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.

If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.

If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup



Turn off the power switch and, disconnect the power cord from the ac outlet.

Replace the pickup with a normal one. (Refer to "Pickup Removal" on the previous page)

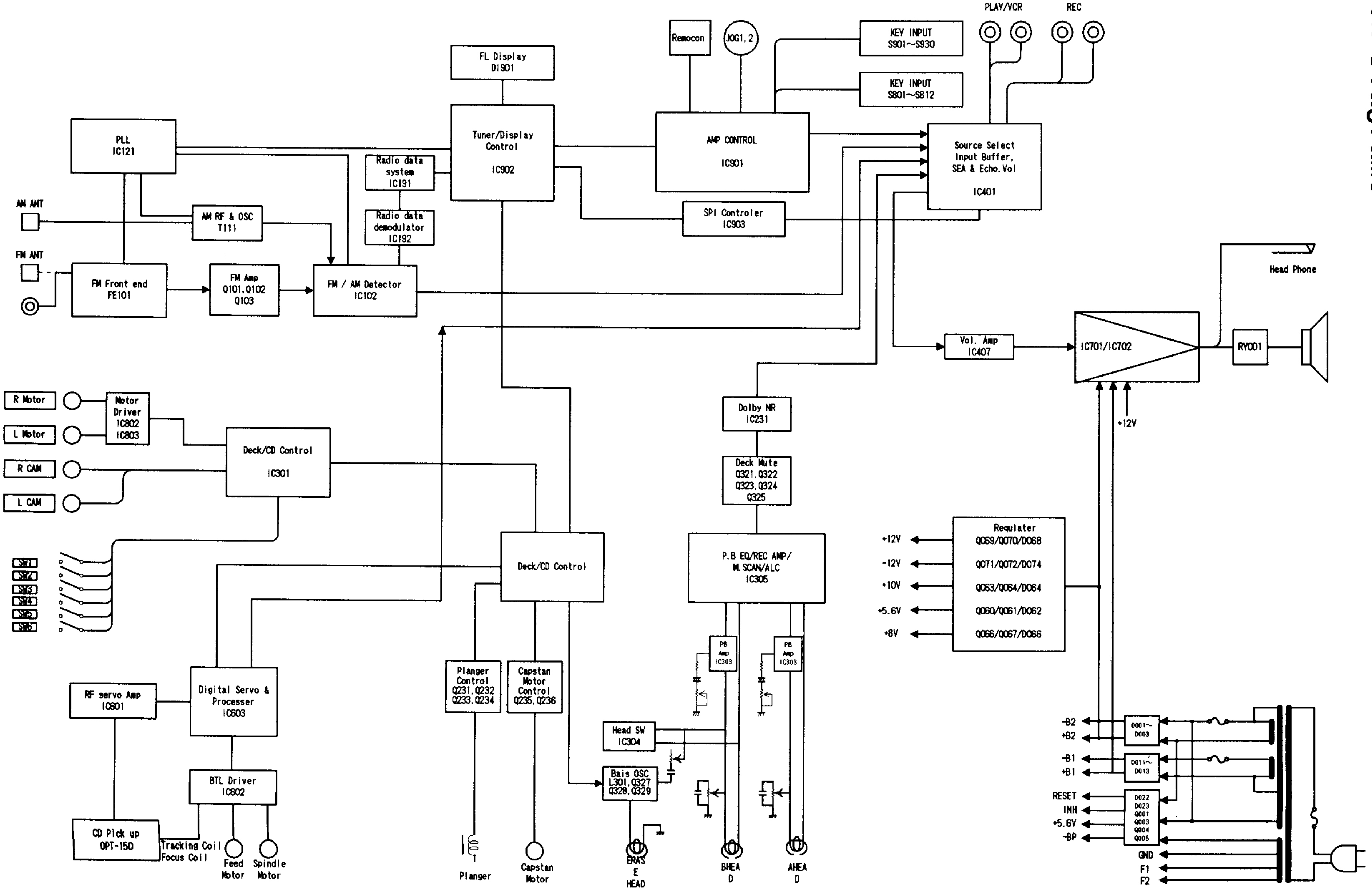
Plug the power cord in, and turn the power on. At this time, check that the laser emits for about 3seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.

Play a disc.

Check the eye-pattern at TP2.

Finish.

Block Diagrams

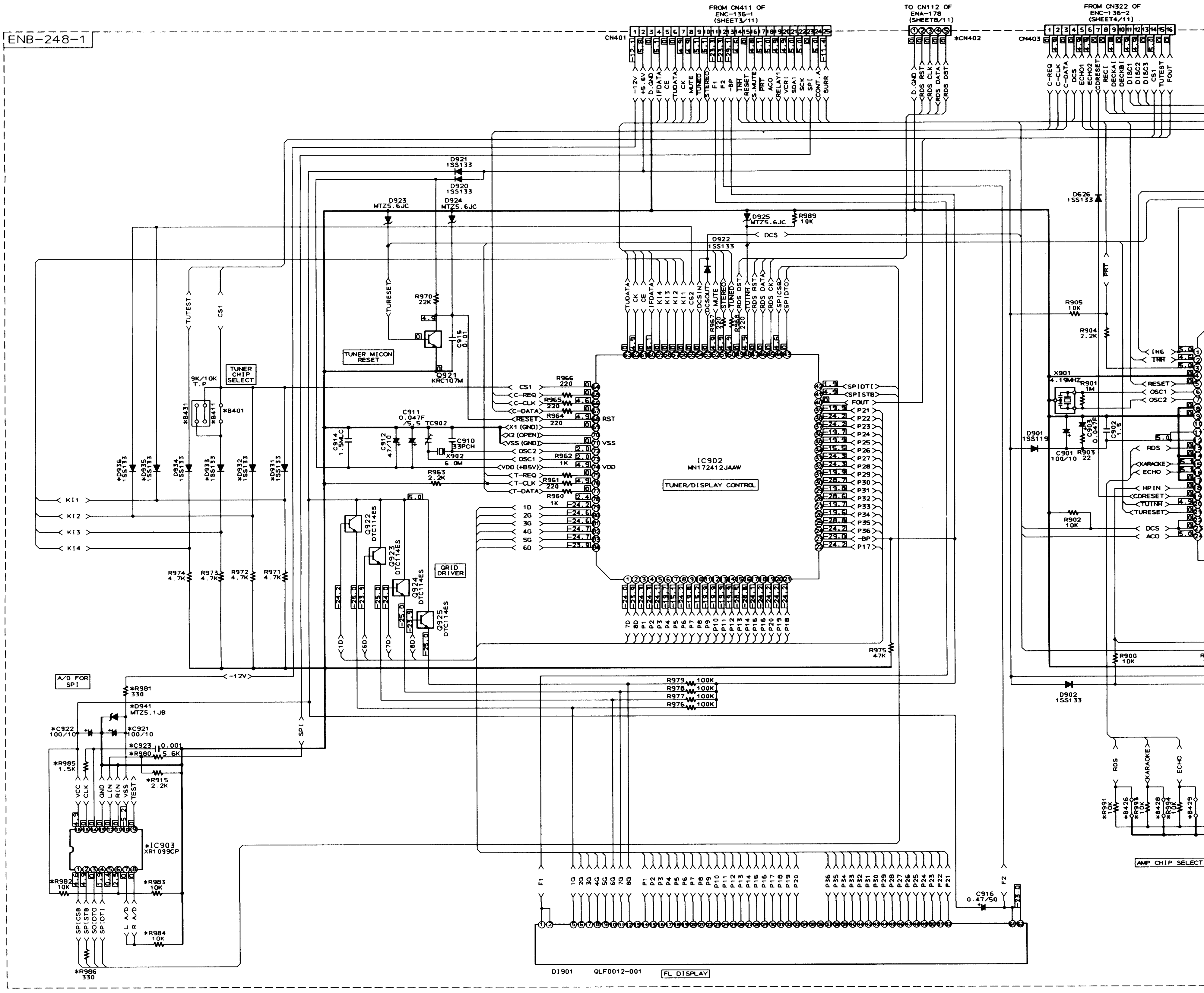


PLAY/VCR
REC
Remocon
JOG1,2
KEY INPUT S901~S930
KEY INPUT S801~S812
FL Display DI901
Tuner/Display Control IC902
AMP CONTROL IC901
Source Select Input Buffer, SEA & Echo.Vol IC401
PLL IC121
Radio data system IC191
Radio data demodulator IC192
SPI Controler IC903
AM ANT
AM RF & OSC T111
FM ANT
FM Front end FE101
FM Amp Q101,Q102 Q103
FM / AM Detector IC102
Head Phone
Vol. Amp IC407
IC701/IC702
RY001
+12V
R Motor
L Motor
R CAM
L CAM
Motor Driver IC802 IC803
Deck/CD Control IC301
Dolby NR IC231
Deck Mute Q321,Q322 Q323,Q324 Q325
SW1
SW2
SW3
SW4
SW5
SW6
Deck/CD Control
P.B EQ/REC AMP/ M.SCAN/ALC IC305
Requlater Q069/Q070/D068 Q071/Q072/D074 Q063/Q064/D064 Q060/Q061/D062 Q066/Q067/D066
+12V
-12V
+10V
+5.6V
+8V
PB Amp IC303
PB Amp IC303
RF servo Amp IC601
Digital Servo & Processer IC603
BTL Driver IC602
CD Pick up OPT-150
Tracking Coil
Focus Coil
Feed Motor
Spindle Motor
Planger Control Q231,Q232 Q233,Q234
Capstan Motor Control Q235,Q236
Planger
Capstan Motor
Head SW IC304
Bais OSC L301,Q327 Q328,Q329
ERASE HEAD
BHEAD
AHEAD
-B2
+B2
-B1
+B1
RESET
INH
+5.6V
-BP
D001~ D003
D011~ D013
D022 D023 Q001 Q003 Q004 Q005
GND
F1
F2

—— MEMO ——

Schematic Diagrams

■ Front Section

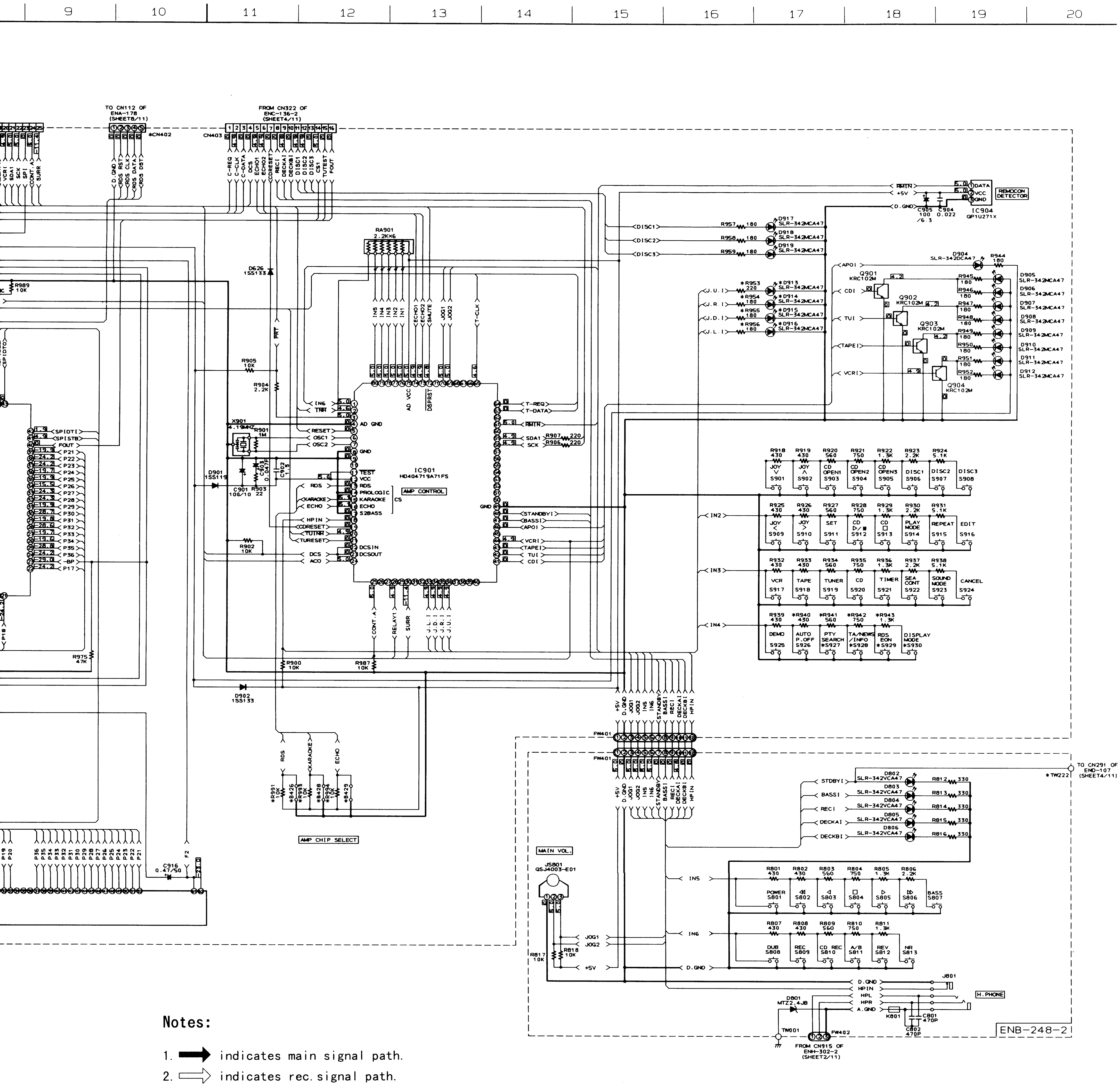

ENB-248-1
FROM CN411 OF ENC-136-1 (SHEET3/11)
TO CN112 OF ENA-178 (SHEET8/11)
FROM CN322 OF ENC-136-2 (SHEET4/11)
CN401
CN402
CN403
IC902
MN172412JAAW
TUNER/DISPLAY CONTROL
TUNER MICON RESET
TUNER CHIP SELECT
GRID DRIVER
A/D FOR SPI
IC903
XR1099CP
X901 4.19MHZ
X902 6.0M
D1901 QLF0012-001
FL DISPLAY
AMP CHIP SELECT
Q921 KRC107M
Q922 DTC114ES
Q923 DTC114ES
Q924 DTC114ES
Q925 DTC114ES

* MARK LIST

	D601T				D631T	D651TR	D661T
	U, UT, UP, VS, UB	A	EF, EN, G, BS	VX	EF, EN, G	EF, EN, G	J, C
B401	USED	USED	NONE	NONE	NONE	NONE	NONE
B411, 431	NONE	NONE	NONE	NONE	NONE	NONE	USED
B426	USED	USED	USED	USED	USED	NONE	USED
B428	NONE	USED	USED	USED	NONE	USED	NONE
B429	NONE	USED	USED	USED	USED	USED	USED
C921~923	USED	NONE	NONE	NONE	NONE	NONE	USED
CN402	NONE	NONE	NONE	NONE	NONE	USED	NONE
D913~916	NONE	NONE	NONE	NONE	NONE	USED	NONE
D931	USED	NONE	NONE	USED	NONE	NONE	NONE
D932	NONE	NONE	NONE	USED	NONE	NONE	USED
D933	USED	USED	NONE	NONE	NONE	NONE	USED
D935	USED	NONE	NONE	NONE	NONE	NONE	USED
D936	NONE	NONE	NONE	NONE	NONE	USED	NONE
D941	USED	NONE	NONE	NONE	NONE	NONE	USED
IC903	USED	NONE	NONE	NONE	NONE	NONE	USED
R915	USED	NONE	NONE	NONE	NONE	NONE	USED
R953~956	NONE	NONE	NONE	NONE	NONE	USED	NONE
R980~986	USED	NONE	NONE	NONE	NONE	NONE	USED
R991	NONE	NONE	NONE	NONE	NONE	USED	NONE
R993	USED	NONE	NONE	NONE	USED	NONE	NONE
R994	USED	NONE	NONE	NONE	NONE	NONE	NONE
R940~943	NONE	NONE	NONE	NONE	NONE	USED	NONE
S927~930	NONE	NONE	NONE	NONE	NONE	USED	NONE
TW222	NONE	USED	USED	USED	NONE	USED	USED

Notes:

1. ➡ indicates main signa
2. ⇨ indicates rec. signal
3. When replacing the parts i
are (▨) and those marke
to use the designated part
4. This is the standerd circu
The design and contents ar
change withoutnotice.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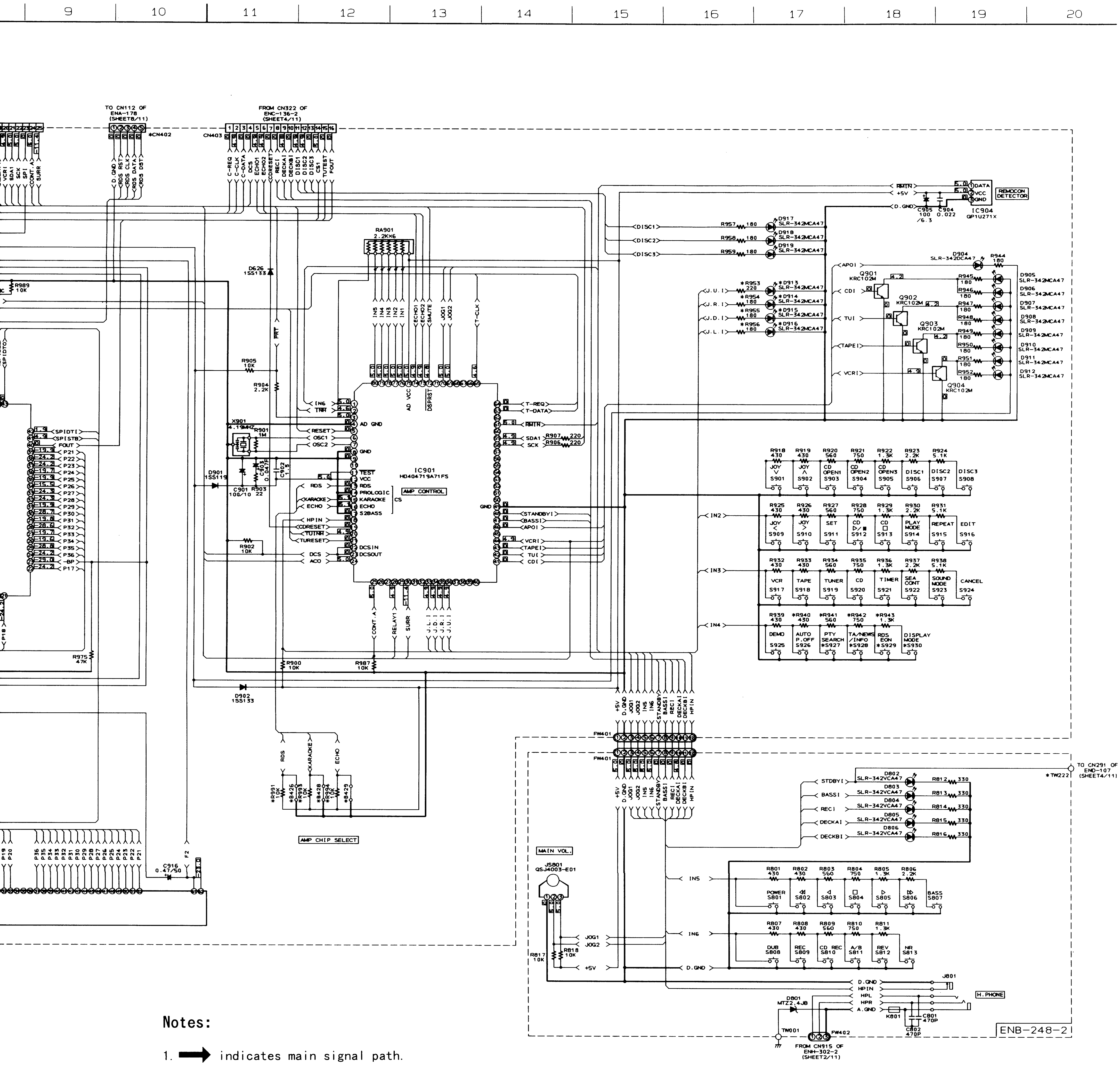
20
TO CN112 OF ENA-178 (SHEET8/11)
FROM CN322 OF ENC-136-2 (SHEET4/11)
*CN402
CN403
RA901 2.2KX6
IC901 HD404719A71FS
AMP CONTROL
X901 4.19MHz
D901 1SS119
D902 1SS133
D626 1SS133
R905 10K
R904 2.2K
R902 10K
R900 10K
R987 10K
R975 47K
R989 10K
C916 0.47/50
IC904 GP1U271X
REMOCON DETECTOR
C905 100 /6.3
C904 0.022
Q901 KRC102M
Q902 KRC102M
Q903 KRC102M
Q904 KRC102M
D917 SLR-342MCA47
D918 SLR-342MCA47
D919 SLR-342MCA47
D904 SLR-342OCA47
FW401
FW402
AMP CHIP SELECT
MAIN VOL.
JS801 QSJ4003-E01
R817 10K
R818 10K
D801 MTZ2.4JB
TW001
J801
K801
C801 470P
C802 470P
H.PHONE
TO CN291 OF ENO-107 (SHEET4/11)
*TW222
FROM CN915 OF ENH-302-2 (SHEET2/11)
ENB-248-2
JOY V S901
JOY Λ S902
CD OPEN1 S903
CD OPEN2 S904
CD OPEN3 S905
DISC1 S906
DISC2 S907
DISC3 S908
JOY < S909
JOY > S910
SET S911
CD ▷/II S912
CD □ S913
PLAY MODE S914
REPEAT S915
EDIT S916
VCR S917
TAPE S918
TUNER S919
CD S920
TIMER S921
SEA CONT S922
SOUND MODE S923
CANCEL S924
DEMO S925
AUTO P.OFF S926
PTY SEARCH *S927
TA/NEWS /INFO *S928
RDS EON *S929
DISPLAY MODE *S930
POWER S801
◁◁ S802
◁ S803
□ S804
▷ S805
▷▷ S806
BASS S807
DUB S808
REC S809
CD REC S810
A/B S811
REV S812
NR S813

Notes:

1. ➡ indicates main signal path.
2. ⇨ indicates rec. signal path.
3. When replacing the parts in the darkended are (▨) and those marked with ⚠, be sure to use the designated parts to ensure safety.
4. This is the standerd circuit diagram . The design and contents are subject to change withoutnotice.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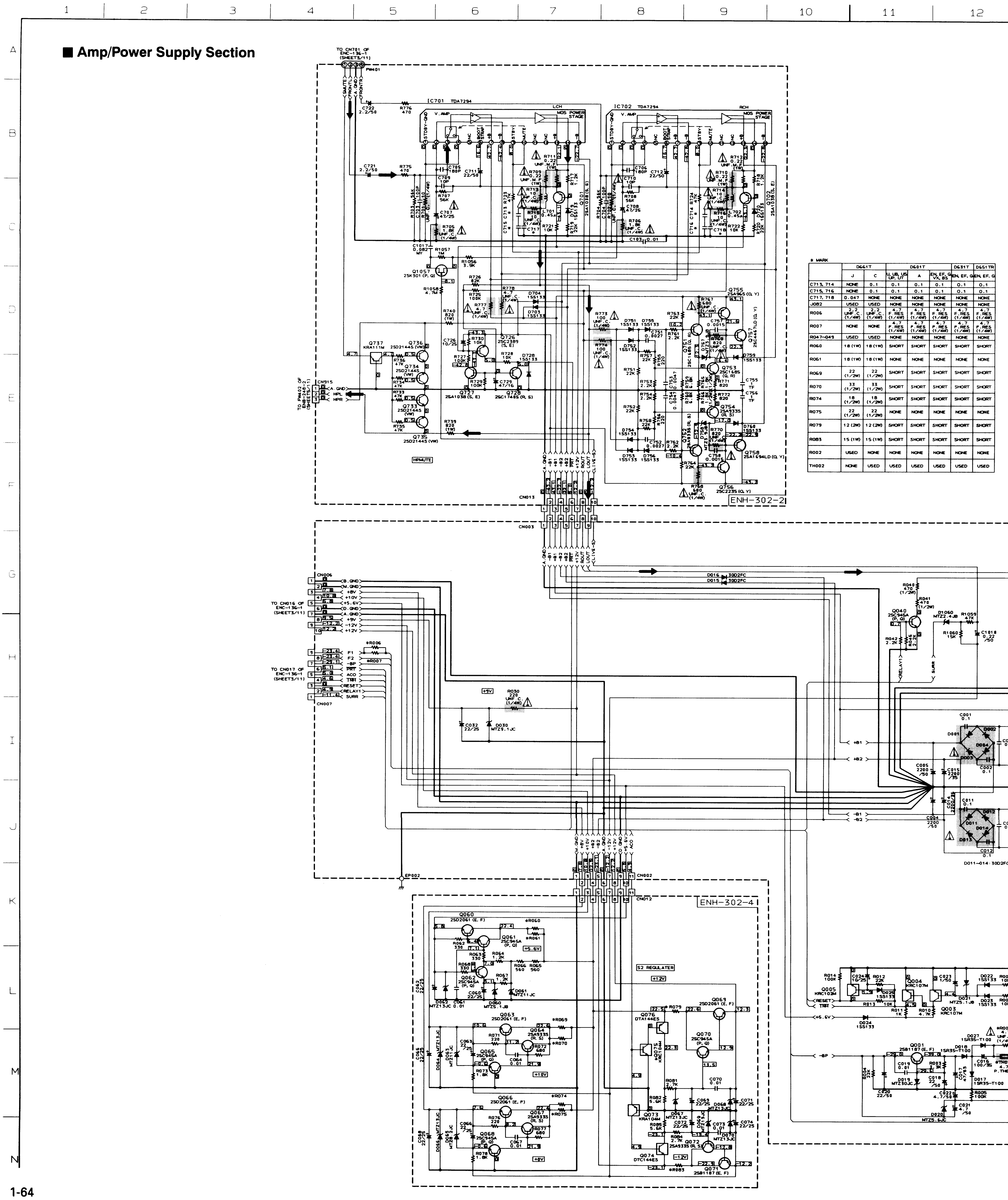
TO CN112 OF ENA-178 (SHEET8/11)
FROM CN322 OF ENC-136-2 (SHEET4/11)
CN402
CN403
IC901 HD404719A71FS
AMP CONTROL
RA901 2.2K×6
X901 4.19MHz
IC904 GP1U271X
REMOCON DETECTOR
Q901 KRC102M
Q902 KRC102M
Q903 KRC102M
Q904 KRC102M
AMP CHIP SELECT
MAIN VOL.
JS801 QSJ4003-E01
FW401
FW402
TO CN291 OF ENO-107 (SHEET4/11)
FROM CN915 OF ENH-302-2 (SHEET2/11)
H.PHONE
J801
ENB-248-2
JOY
CD OPEN1
CD OPEN2
CD OPEN3
DISC1
DISC2
DISC3
SET
PLAY MODE
REPEAT
EDIT
VCR
TAPE
TUNER
CD
TIMER
SEA CONT
SOUND MODE
CANCEL
DEMO
AUTO P.OFF
PTY SEARCH
TA/NEWS /INFO
RDS EON
DISPLAY MODE
POWER
BASS
DUB
REC
CD REC
A/B
REV
NR

Notes:

1. ➡ indicates main signal path.
2. ⇨ indicates rec. signal path.
3. When replacing the parts in the darkended are (▨) and those marked with ⚠, be sure to use the designated parts to ensure safety.
4. This is the standerd circuit diagram . The design and contents are subject to change withoutnotice.

■ Amp/Power Supply Section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G
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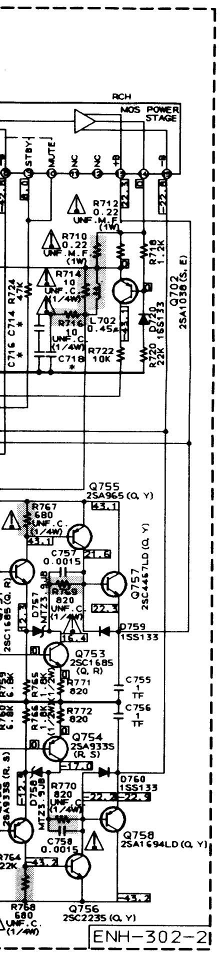
I
J
K
L
M
N
TO CN701 OF ENC-136-1 (SHEET3/11)
PW401
IC701 TDA7294
IC702 TDA7294
LCH
RCH
V. AMP
MOS POWER STAGE
C722 2.2/50
R776 470
C721 2.2/50
R775 470
Q1057 2SK301 (P, Q)
Q737 KRA111M
Q736 2SD2144S (VW)
Q734 2SD2144S (VW)
Q733 2SD2144S (VW)
Q735 2SD2144S (VW)
Q726 2SC2389 (S, E)
Q727 2SA1038 (S, E)
Q728 2SC1740S (R, S)
Q755 2SA965 (O, Y)
Q757 2SC2235 (O, Y)
Q751 2SC1685 (Q, R)
Q753 2SC1685 (Q, R)
Q754 2SA933S (R, S)
Q752 2SA933S (R, S)
Q758 2SA1694LD (O, Y)
Q756 2SC2235 (O, Y)
Q701 2SA1038 (S, E)
Q702 2SA1038 (S, E)
CN915
TO PW402 OF ENB-248-2 (SHEET5/11)
HPMUTE
CN013
CN003
ENH-302-2
CN006
TO CN016 OF ENC-136-1 (SHEET3/11)
TO CN017 OF ENC-136-1 (SHEET3/11)
CN007
R030 220 UNF.C. (1/4W)
C032 22/25
D030 MTZ9.1JC
D016 30D2FC
D015 30D2FC
Q040 2SC945A (P, Q)
D1060 MTZ2.4JB
EP002
CN002
CN012
ENH-302-4
Q060 2SD2061 (E, F)
Q061 2SC945A (P, Q)
Q062 2SC945A (P, Q)
Q063 2SD2061 (E, F)
Q064 2SA933S (R, S)
Q065 2SC945A (P, Q)
Q066 2SD2061 (E, F)
Q067 2SA933S (R, S)
Q068 2SC945A (P, Q)
S2 REGULATER
Q069 2SD2061 (E, F)
Q070 2SC945A (P, Q)
Q076 DTA144ES
Q075 KRC104M
Q073 KRA104M
Q072 2SA933S (R, S)
Q074 DTC144ES
Q071 2SB1187 (E, F)
Q005 KRC103M
Q004 KRC107M
Q003 KRC107M
Q001 2SB1187 (E, F)
D011~014: 30D2FC

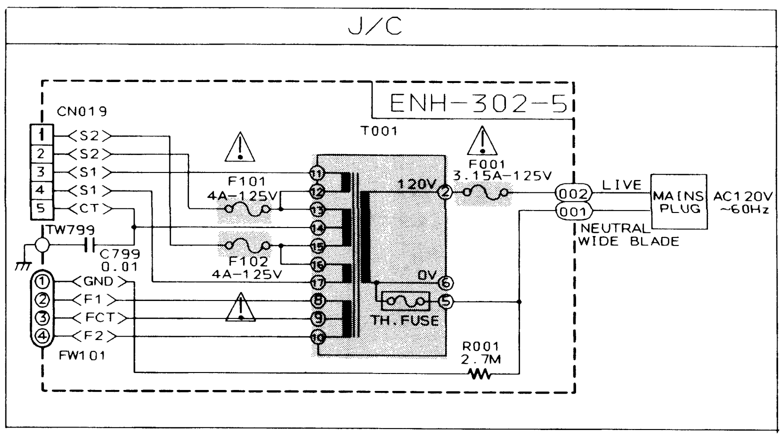
* MARK

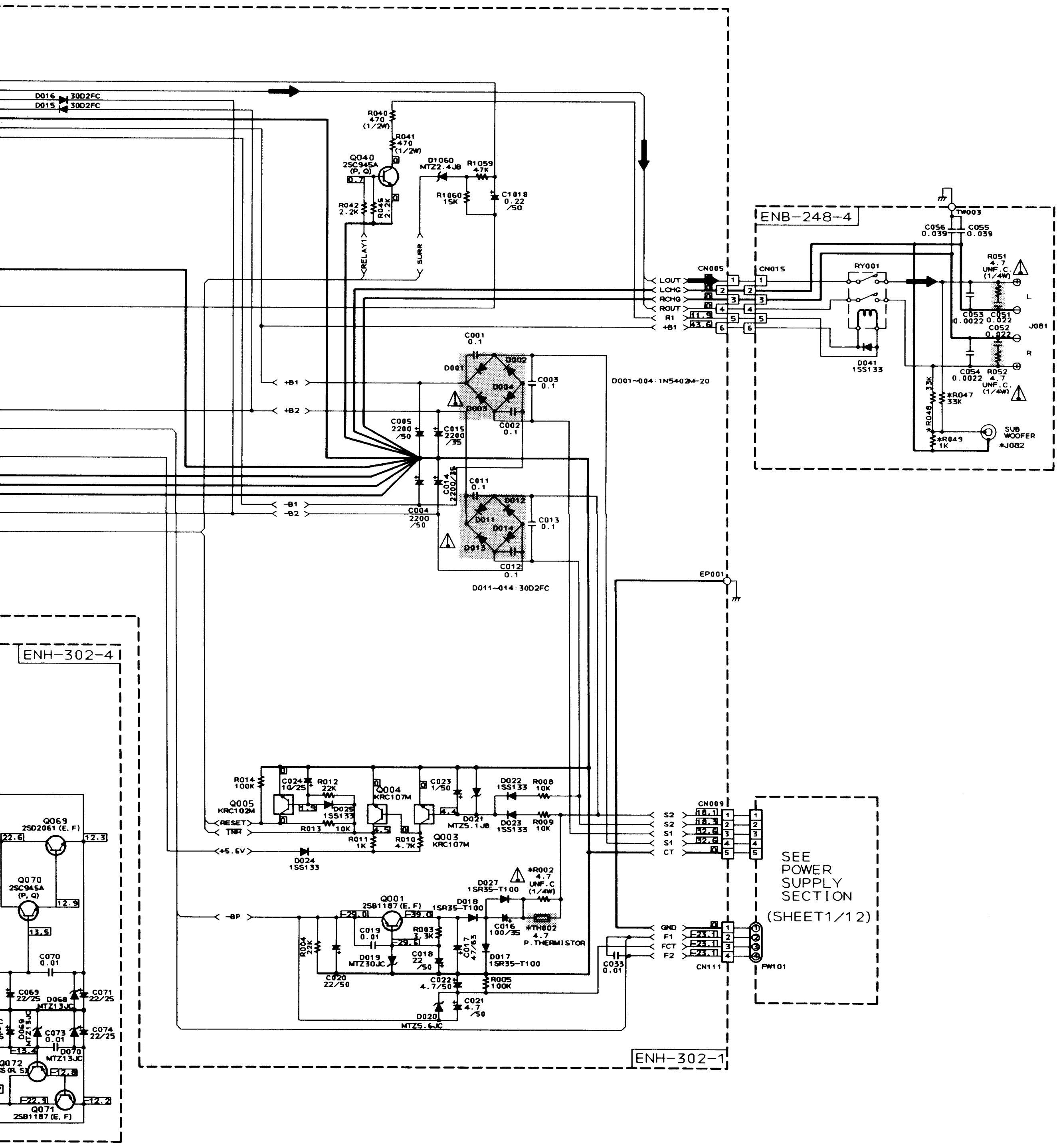
	D661T		D601T			D631T	D651TR
	J	C	U, UB, US UP, UT	A	EN, EF, G VX, BS	EN, EF, G	EN, EF, G
C713, 714	NONE	0.1	0.1	0.1	0.1	0.1	0.1
C715, 716	NONE	0.1	0.1	0.1	0.1	0.1	0.1
C717, 718	0.047	NONE	NONE	NONE	NONE	NONE	NONE
J082	USED	USED	NONE	NONE	NONE	NONE	NONE
R006	2.2 UNF.C. (1/4W)	2.2 UNF.C. (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)
R007	NONE	NONE	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)
R047~049	USED	USED	NONE	NONE	NONE	NONE	NONE
R060	18 (1W)	18 (1W)	SHORT	SHORT	SHORT	SHORT	SHORT
R061	18 (1W)	18 (1W)	NONE	NONE	NONE	NONE	NONE
R069	22 (1/2W)	22 (1/2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R070	33 (1/2W)	33 (1/2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R074	18 (1/2W)	18 (1/2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R075	22 (1/2W)	22 (1/2W)	NONE	NONE	NONE	NONE	NONE
R079	12 (2W)	12 (2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R083	15 (1W)	15 (1W)	SHORT	SHORT	SHORT	SHORT	SHORT
R002	USED	NONE	NONE	NONE	NONE	NONE	NONE
TH002	NONE	USED	USED	USED	USED	USED	USED


RCH
MOS POWER STAGE
R712 0.22 UNF.M.F (1W)
R710
R714 10 UNF.C (1W)
R716 10 UNF.C (1/4W)
L702 0.45μ
R722 10K
C714
C716
C718
R718 1.2K
Q702 2SA1038(Q, E)
Q755 2SA965(Q, Y)
R767 680
C757 0.0015
Q757 2SC4467LD(Q, Y)
R769 820
D759 1SS133
Q753 2SC1685 (Q, R)
R771 820
C755 1 TF
C756 1 TF
R772 820
Q754 2SA5335 (R, S)
D760 1SS133
R770 820
C758 0.0015
Q758 2SA1694LD(Q, Y)
R764 22K
R768 680 UNF.C. (1/4W)
Q756 2SC2235(Q, Y)
ENH-302-2

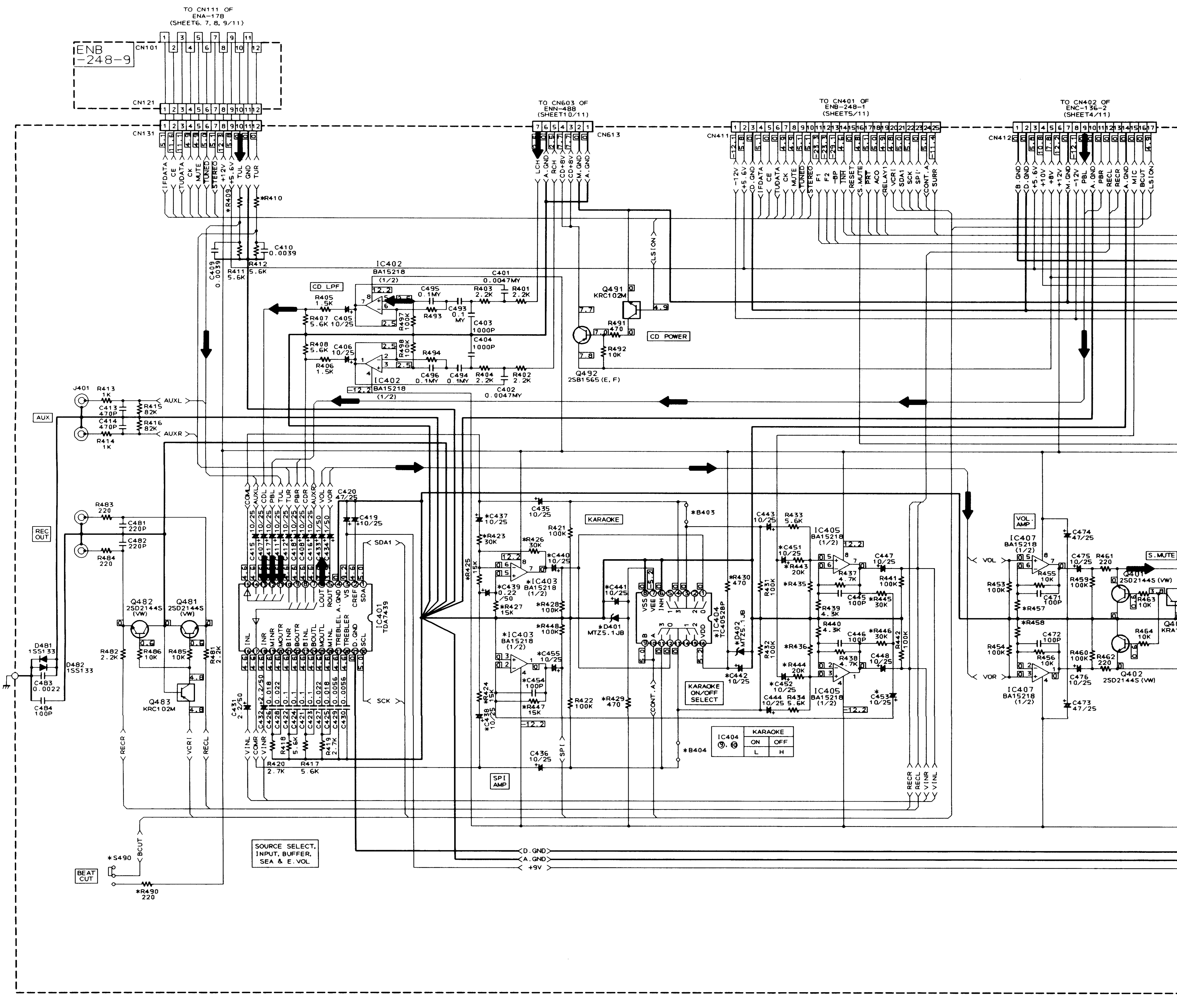
* MARK

	D661T		D601T			D631T	D651TR
	J	C	U, UB, US UP, UT	A	EN, EF, G VX, BS	EN, EF, G	EN, EF, G
C713, 714	NONE	0.1	0.1	0.1	0.1	0.1	0.1
C715, 716	NONE	0.1	0.1	0.1	0.1	0.1	0.1
C717, 718	0.047	NONE	NONE	NONE	NONE	NONE	NONE
J082	USED	USED	NONE	NONE	NONE	NONE	NONE
R006	2.2 UNF.C. (1/4W)	2.2 UNF.C. (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)
R007	NONE	NONE	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)	4.7 F.RES (1/4W)
R047~049	USED	USED	NONE	NONE	NONE	NONE	NONE
R060	18 (1W)	18 (1W)	SHORT	SHORT	SHORT	SHORT	SHORT
R061	18 (1W)	18 (1W)	NONE	NONE	NONE	NONE	NONE
R069	22 (1/2W)	22 (1/2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R070	33 (1/2W)	33 (1/2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R074	18 (1/2W)	18 (1/2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R075	22 (1/2W)	22 (1/2W)	NONE	NONE	NONE	NONE	NONE
R079	12 (2W)	12 (2W)	SHORT	SHORT	SHORT	SHORT	SHORT
R083	15 (1W)	15 (1W)	SHORT	SHORT	SHORT	SHORT	SHORT
R002	USED	NONE	NONE	NONE	NONE	NONE	NONE
TH002	NONE	USED	USED	USED	USED	USED	USED


J/C
ENH-302-5
CN019
S2
S2
S1
S1
CT
T001
F101 4A-125V
F102 4A-125V
F001 3.15A-125V
120V
0V
TH.FUSE
TW799
C799 0.01
GND
F1
FCT
F2
FW101
R001 2.7M
002
001
LIVE
NEUTRAL WIDE BLADE
MAINS PLUG
AC120V ~60Hz

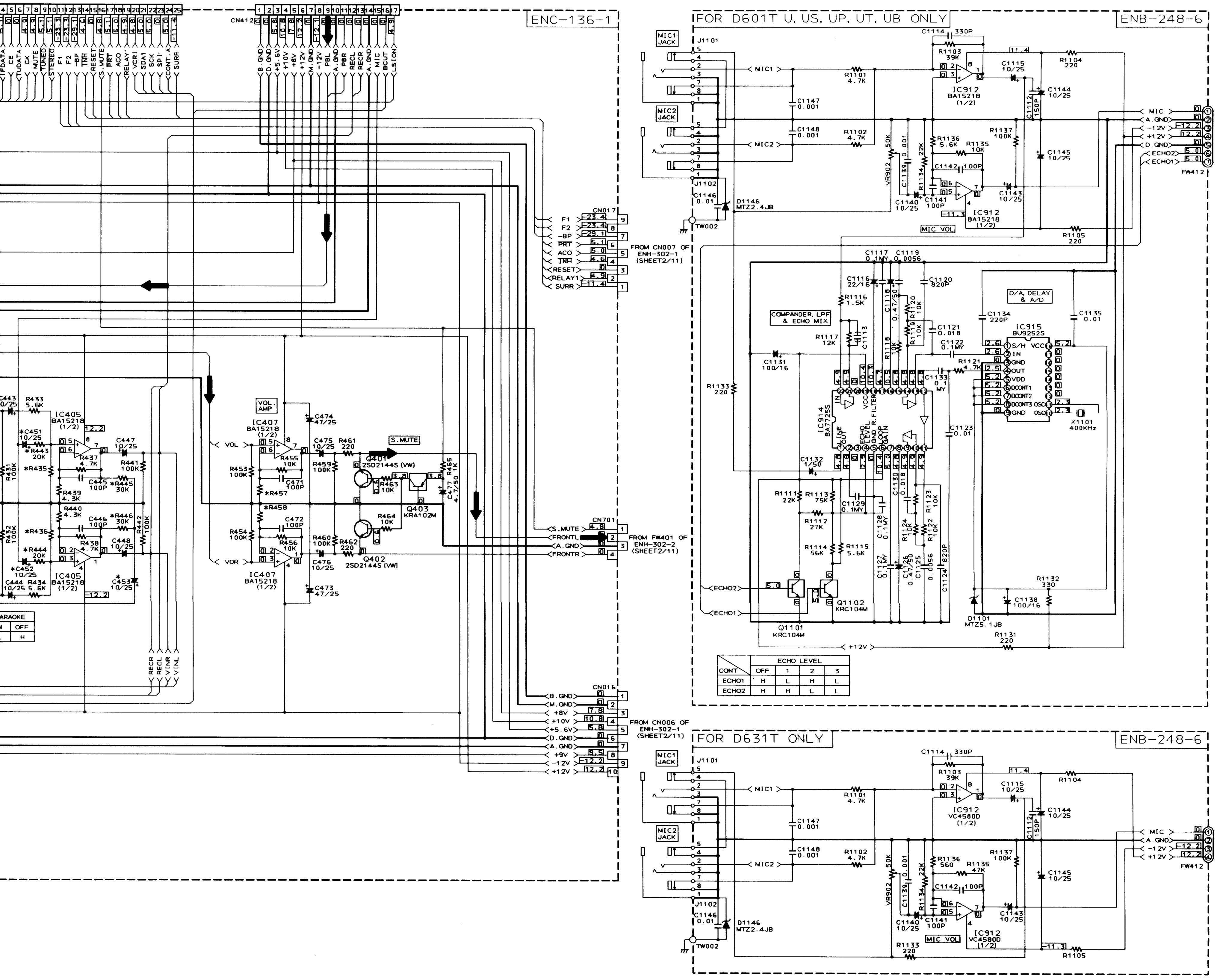

D016 30D2FC
D015 30D2FC
R040 470 (1/2W)
R041 470 (1/2W)
Q040 2SC945A (P, Q)
D1060 MTZ2.4JB
R1059 47K
R1060 15K
C1018 0.22 /50
R042 2.2K
R046 2.2K
RELAY1
SURR
CN005
LOUT
LCHG
RCHG
ROUT
R1
+B1
+B1
+B2
-B1
-B2
C001 0.1
D001
D002
D003
D004
C003 0.1
C002 0.1
C085 2200 /50
C015 2200 /35
C014 2200 /35
C004 2200 /50
C011 0.1
D011
D012
D013
D014
C013 0.1
C012 0.1
D001~004 : 1N5402M-20
D011~014 : 30D2FC
EP001
ENB-248-4
TW003
C056 0.039
C055 0.039
CN015
RY001
R051 4.7 UNF.C (1/4W)
L
J081
R
C053 0.0022
C051 0.022
C052 0.022
C054 0.0022
R052 4.7 UNF.C (1/4W)
D041 1SS133
R048 33K
R047 33K
R049 1K
SUB WOOFER
J082
ENH-302-4
Q069 2SD2061 (E, F)
Q070 2SC945A (P, Q)
C070 0.01
C069 22/25
D068 MTZ13JC
C071 22/25
C073 0.01
C074 22/25
D070 MTZ13JC
Q072
Q071 2SB1187 (E, F)
R014 100K
C024 10/25
R012 22K
D025 1SS133
Q005 KRC102M
Q004 KRC107M
C023 1/50
D022 1SS133
R008 10K
RESET
TRR
R013 10K
R011 1K
R010 4.7K
Q003 KRC107M
D021 MTZ5.1JB
D023 1SS133
R009 10K
+5.6V
D024 1SS133
CN009
S2
S2
S1
S1
CT
-BP
Q001 2SB1187 (E, F)
C019 0.01
R003 3K
D018 1SR35-T100
D027 1SR35-T100
R002 4.7 UNF.C (1/4W)
C016 100/35
TH002 4.7 P.THERMISTOR
R004 33K
C020 22/50
D019 MTZ30JC
C018 22 /50
C017 4.7/63
D017 1SR35-T100
R005 100K
C022 4.7/50
C021 4.7 /50
D020 MTZ5.6JC
GND
F1
FCT
F2
C035 0.01
CN111
FW101
SEE POWER SUPPLY SECTION (SHEET1/12)
ENH-302-1

■ Source Select Section


TO CN111 OF ENA-178 (SHEET6, 7, 8, 9/11)
ENB-248-9
CN101
CN121
CN131
IFDATA
CE
TUDATA
CK
MUTE
TUNED
STEREO
+12V
+5.6V
TUL
GND
TUR
TO CN603 OF ENN-488 (SHEET10/11)
CN613
LCH
A.GND
RCH
CD+8V
CD+8V
M.GND
A.GND
TO CN401 OF ENB-248-1 (SHEET5/11)
CN411
-12V
+5.6V
D.GND
RESET
TNH
ACO
RELAY1
VCR1
SDA1
SCK
SPI
CONT.A
SURR
TO CN402 OF ENC-136-2 (SHEET4/11)
CN412
B.GND
D.GND
+5.6V
+10V
+8V
+12V
M.GND
PBL
A.GND
PBR
RECL
RECR
A.GND
MIC
BCUT
LSION
IC402 BA15218 (1/2)
CD LPF
CD POWER
Q491 KRC102M
Q492 2SB1565 (E, F)
J401
AUX
AUXL
AUXR
REC OUT
Q482 2SD2144S (VW)
Q481 2SD2144S (VW)
Q483 KRC102M
D481 1SS133
D482 1SS133
IC401 TDA7439
SDA1
SCK
VOL
VOR
VINL
VINR
COMR
RECR
RECL
VCR1
BCUT
*S490
BEAT CUT
*R490 220
SOURCE SELECT, INPUT, BUFFER, SEA & E.VOL.
SPI AMP
KARAOKE
*IC403 BA15218 (1/2)
IC404 TC4052BP
*D401 MTZ5.1JB
*D402 MTZ5.1JB
KARAOKE ON/OFF SELECT
IC404 ⑨.⑩
KARAOKE
ON
OFF
L
H
*B403
*B404
IC405 BA15218 (1/2)
VOL. AMP
IC407 BA15218 (1/2)
S.MUTE
Q401 2SD2144S (VW)
Q402 2SD2144S (VW)
D.GND
A.GND
+9V

∗ MARK LIST

FUNCTION	SYMBOL NO.	D601T			D631T	D651TR	D661T
		U, US, UP, UT, UB	A	BS, EF, EN, G, VX	EF, EN, G	EF, EN, G	J, C
SPI	C453~455	USED	NONE	NONE	NONE	NONE	USED
	R445, 446	USED	NONE	NONE	NONE	NONE	USED
	R447	USED	SHORT	SHORT	SHORT	SHORT	USED
	R448	USED	NONE	NONE	NONE	NONE	USED
KARAOKE	C437~442	USED	NONE	NONE	USED	NONE	NONE
	D401, 402	USED	NONE	NONE	USED	NONE	NONE
	IC403	USED	NONE	NONE	USED	NONE	USED
	IC404	USED	NONE	NONE	USED	NONE	NONE
	R423~425	USED	NONE	NONE	USED	NONE	NONE
	R426, 427	USED	NONE	NONE	USED	NONE	SHORT
	R428~430	USED	NONE	NONE	USED	NONE	NONE
	B403, 404	NONE	USED	USED	NONE	USED	USED
MIC MIX	C451, 452	USED	NONE	NONE	USED	NONE	NONE
	R443, 444	USED	NONE	NONE	USED	NONE	NONE
	R435, 436	4.7K	3.9K	3.9K	4.7K	3.9K	3.9K
GAIN	R409, 410	4.7K	3.3K	3.3K	3.3K	3.3K	4.7K
	R457, 458	7.5K	7.5K	7.5K	7.5K	7.5K	5.6K
B. CUT	S490	NONE	NONE	USED	USED	USED	NONE
	R490	NONE	NONE	USED	USED	USED	NONE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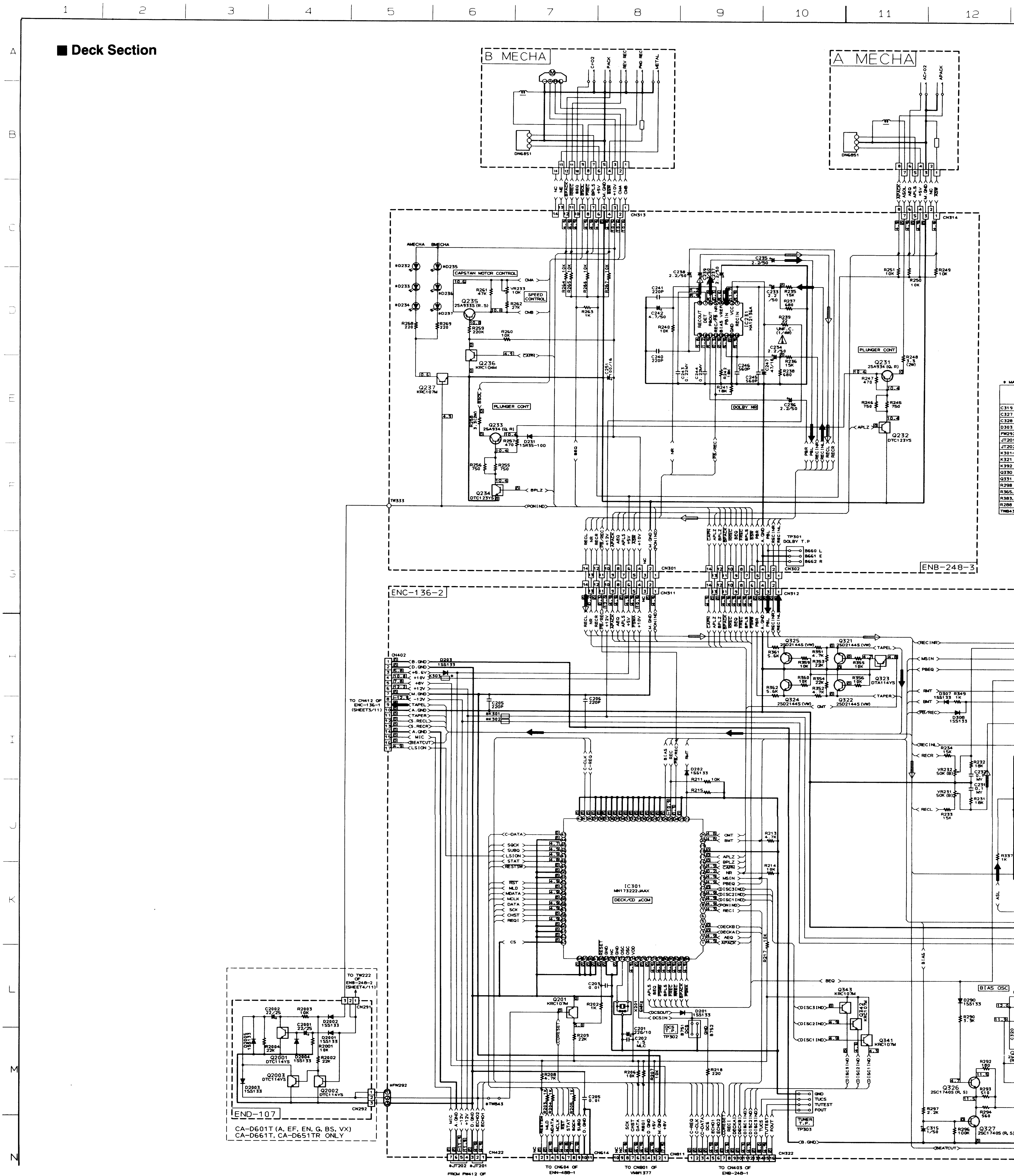
TO CN401 OF ENB-248-1 (SHEET5/11)
TO CN402 OF ENC-136-2 (SHEET4/11)
CN412
ENC-136-1
FOR D601T U, US, UP, UT, UB ONLY
ENB-248-6
MIC1 JACK
MIC2 JACK
J1101
J1102
TW002
D1146 MTZ2.4JB
IC912 BA15218 (1/2)
MIC VOL
VR902
TO CN422 OF ENC-136-2 (SHEET4/11)
FW412
COMPANDER, LPF & ECHO MIX
IC914 BA7725S
D/A, DELAY & A/D
IC915 BU9252S
X1101 400KHz
Q1101 KRC104M
Q1102 KRC104M
D1101 MTZ5.1JB
ECHO LEVEL
CONT OFF 1 2 3
ECHO1 H L H L
ECHO2 H H L L
CN017
FROM CN007 OF ENH-302-1 (SHEET2/11)
CN701
FROM FW401 OF ENH-302-2 (SHEET2/11)
CN016
FROM CN006 OF ENH-302-1 (SHEET2/11)
VOL. AMP
IC407 BA15218 (1/2)
S.MUTE
Q401 2SD2144S (VW)
Q402 2SD2144S (VW)
Q403 KRA102M
IC405 BA15218 (1/2)
KARAOKE
FOR D631T ONLY
IC912 VC4580D (1/2)

■ Deck Section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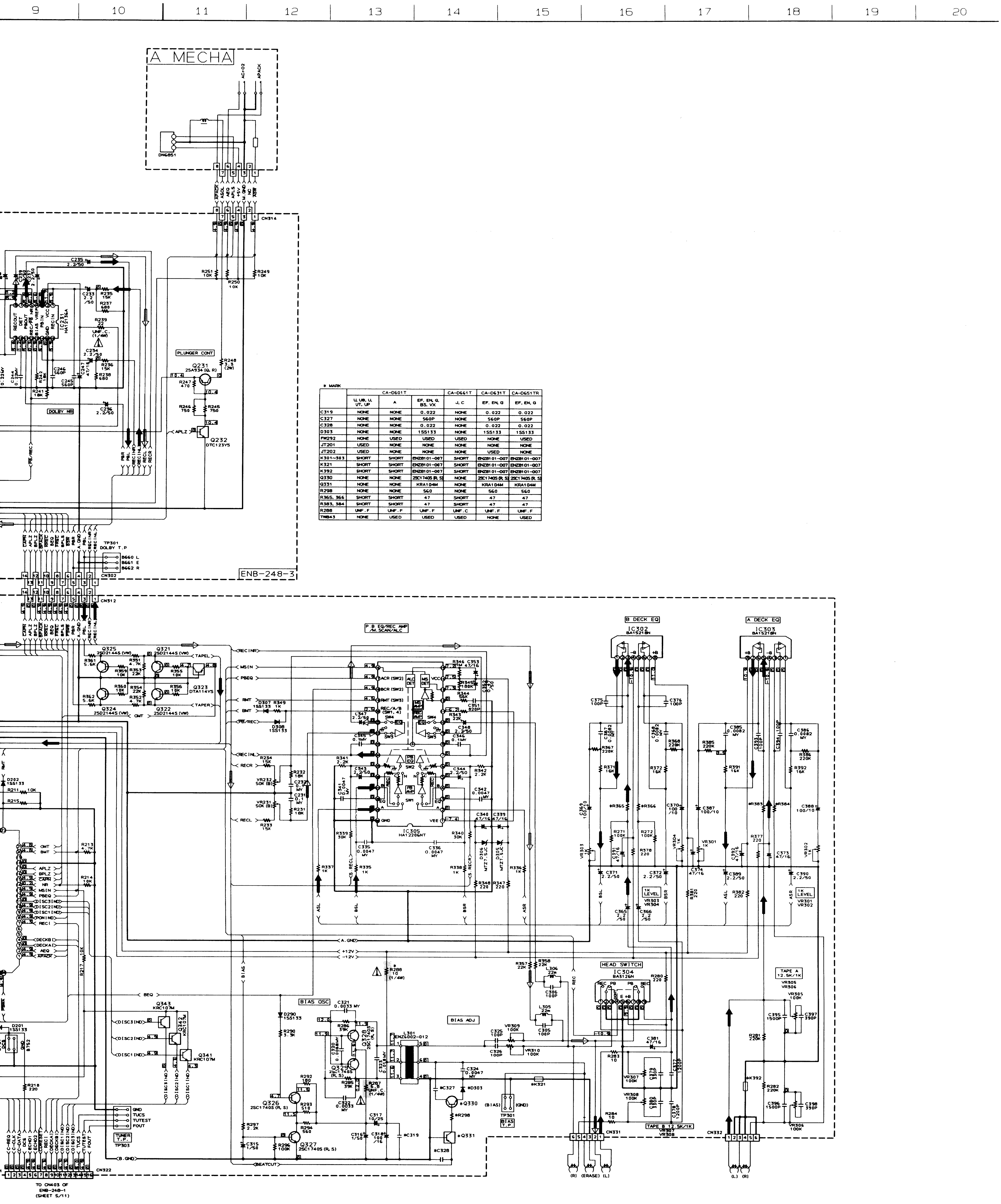
L
M
N
B MECHA
A MECHA
DN6851
CN313
CN314
CAPSTAN MOTOR CONTROL
SPEED CONTROL
PLUNGER CONT
DOLBY NR
IC231 HA12136A
Q235 2SA933S (R, S)
Q236 KRC104M
Q237 KRC107M
Q233 2SA934 (Q, R)
Q234 DTC123YS
Q231 2SA934 (Q, R)
Q232 DTC123YS
D231 1SR35-100
TW333
TP301 DOLBY T.P
ENB-248-3
CN301
CN302
ENC-136-2
CN311
CN312
CN402
TO CN412 OF ENC-136-1 (SHEET3/11)
Q325 2SD2144S (VW)
Q321 2SD2144S (VW)
Q324 2SD2144S (VW)
Q322 2SD2144S (VW)
Q323 DTA114YS
IC301 MN173222JAAX
DECK/CD µCOM
Q201 KRC107M
X201
DCS T.P.
TP302
Q343 KRC107M
Q342 KRC107M
Q341 KRC107M
TUNER T.P.
TP303
BIAS OSC
Q326 2SC1740S (R, S)
Q327 2SC1740S (R, S)
TO TW222 OF ENB-248-2 (SHEET4/11)
CN291
CN292
Q2001 DTC114YS
Q2003 DTC114YS
Q2002 DTC114YS
END-107
CA-D601T (A, EF, EN, G, BS, VX)
CA-D661T, CA-D651TR ONLY
CN422
FROM FW412 OF ENB-248-4 (SHEET 3/11)
CN614
TO CN684 OF ENN-488-1 (SHEET 10/11)
CN811
TO CN801 OF VMH1377 (SHEET 11/11)
CN322
TO CN403 OF ENB-248-1 (SHEET 5/11)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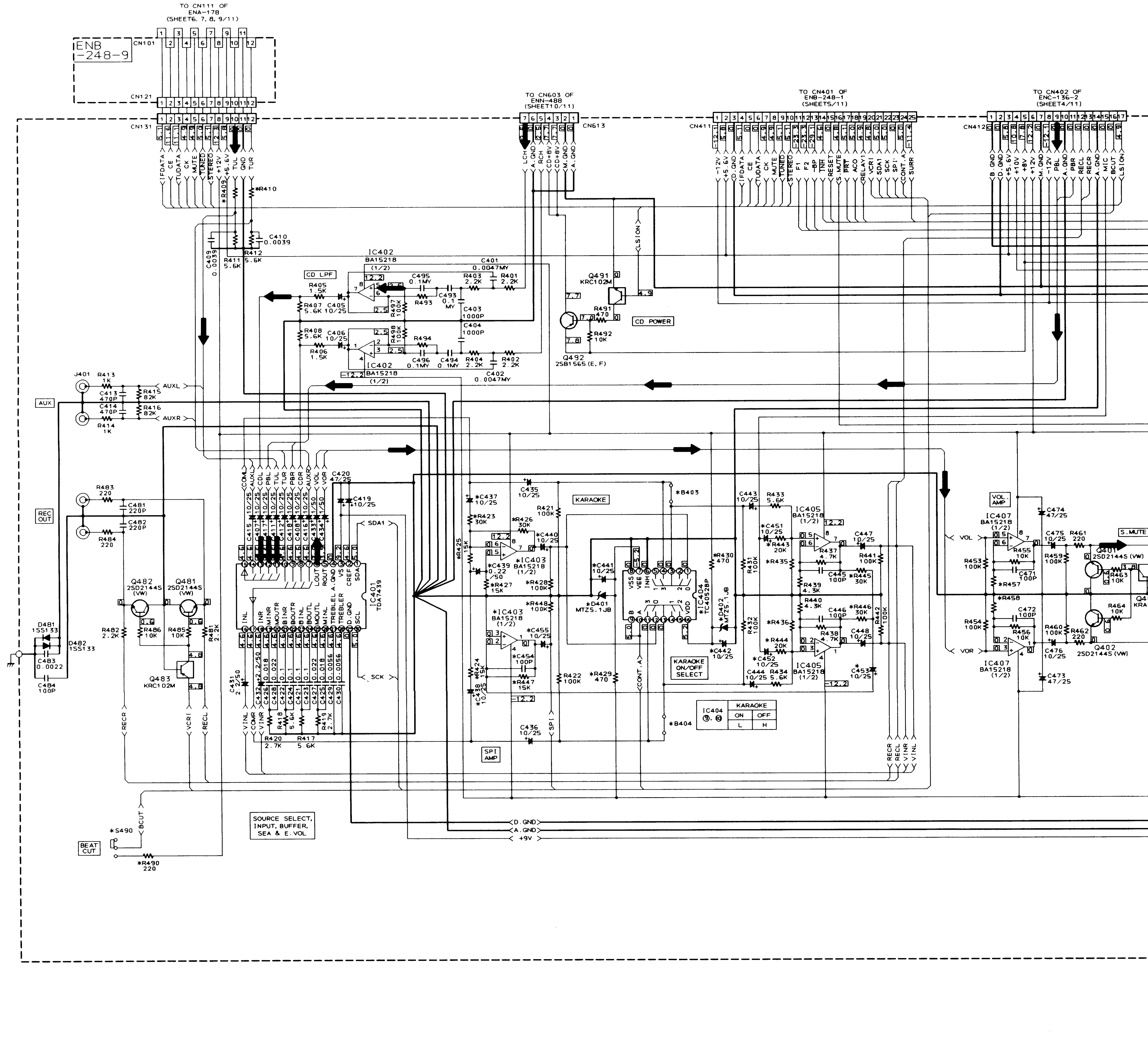
A MECHA
CN314
PLUNGER CONT
DOLBY NR
IC231 HA12136A
Q231 2SA934 (Q, R)
Q232 DTC123YS
TP301 DOLBY T.P
ENB-248-3
CN302
CN312
P B EQ/REC AMP /M.SCAN/ALC
IC305 HA12206NT
B DECK EQ
IC302 BA15218N
A DECK EQ
IC303 BA15218N
HEAD SWITCH
IC304 BA3126N
BIAS OSC
BIAS ADJ
TAPE A 12.5K/1K
TAPE B 12.5K/1K
BIAS T.P TP301
TUNER T.P. TP303
CN331
CN332
CN322
TO CN403 OF ENB-248-1 (SHEET 5/11)
(R) (ERASE) (L)
(L) (R)

* MARK

	CA-D601T			CA-D661T	CA-D631T	CA-D651TR
	U, UB, U, UT, UP	A	EF, EN, G, BS, VX	J, C	EF, EN, G	EF, EN, G
C319	NONE	NONE	0.022	NONE	0.022	0.022
C327	NONE	NONE	560P	NONE	560P	560P
C328	NONE	NONE	0.022	NONE	0.022	0.022
D303	NONE	NONE	1SS133	NONE	1SS133	1SS133
FW292	NONE	USED	USED	USED	NONE	USED
JT201	USED	NONE	NONE	NONE	NONE	NONE
JT202	USED	NONE	NONE	NONE	USED	NONE
K301~303	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
K321	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
K392	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
Q330	NONE	NONE	2SC1740S (R, S)	NONE	2SC1740S (R, S)	2SC1740S (R, S)
Q331	NONE	NONE	KRA104M	NONE	KRA104M	KRA104M
R298	NONE	NONE	560	NONE	560	560
R365, 366	SHORT	SHORT	47	SHORT	47	47
R383, 384	SHORT	SHORT	47	SHORT	47	47
R288	UNF.F	UNF.F	UNF.F	UNF.C	UNF.F	UNF.F
TWB43	NONE	USED	USED	USED	NONE	USED

■ Source Select Section

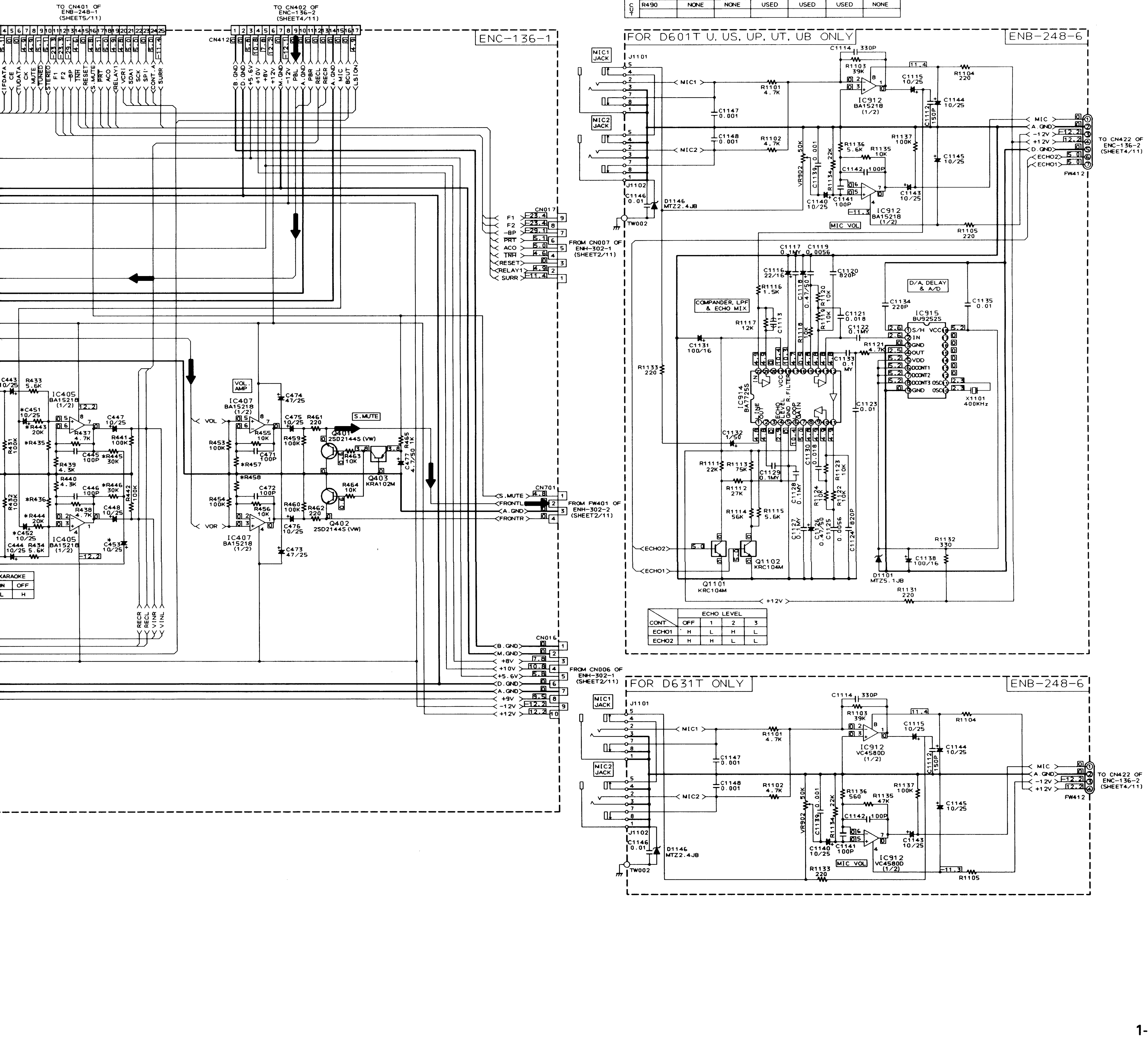


TO CN111 OF ENA-178 (SHEET6, 7, 8, 9/11)
ENB -248-9
CN101
CN121
CN131
TO CN603 OF ENN-488 (SHEET10/11)
CN613
TO CN401 OF ENB-248-1 (SHEET5/11)
CN411
TO CN402 OF ENC-136-2 (SHEET4/11)
CN412
IC402 BA15218 (1/2)
CD LPF
Q491 KRC102M
Q492 2SB1565 (E, F)
CD POWER
LSION
J401
AUX
AUXL
AUXR
REC OUT
Q482 2SD2144S (VW)
Q481 2SD2144S (VW)
Q483 KRC102M
D481 1SS133
D482 1SS133
IC401 TDA7439
SDA1
SCK
KARAOKE
IC403 BA15218 (1/2)
SPI AMP
*D401 MTZ5.1JB
*D402 MTZ5.1JB
*IC404 TC4052BP
KARAOKE ON/OFF SELECT
IC404 ⑨.⑩ KARAOKE ON OFF L H
IC405 BA15218 (1/2)
VOL AMP
IC407 BA15218 (1/2)
S.MUTE
Q401 2SD2144S (VW)
Q402 2SD2144S (VW)
VOL
VOR
RECR
RECL
VCRI
VINL
VINR
BEAT CUT
*S490
*R490 220
BCUT
SOURCE SELECT, INPUT, BUFFER, SEA & E.VOL
D.GND
A.GND
+9V

9 10 11 12 13 14 15 16 17 18 19 20

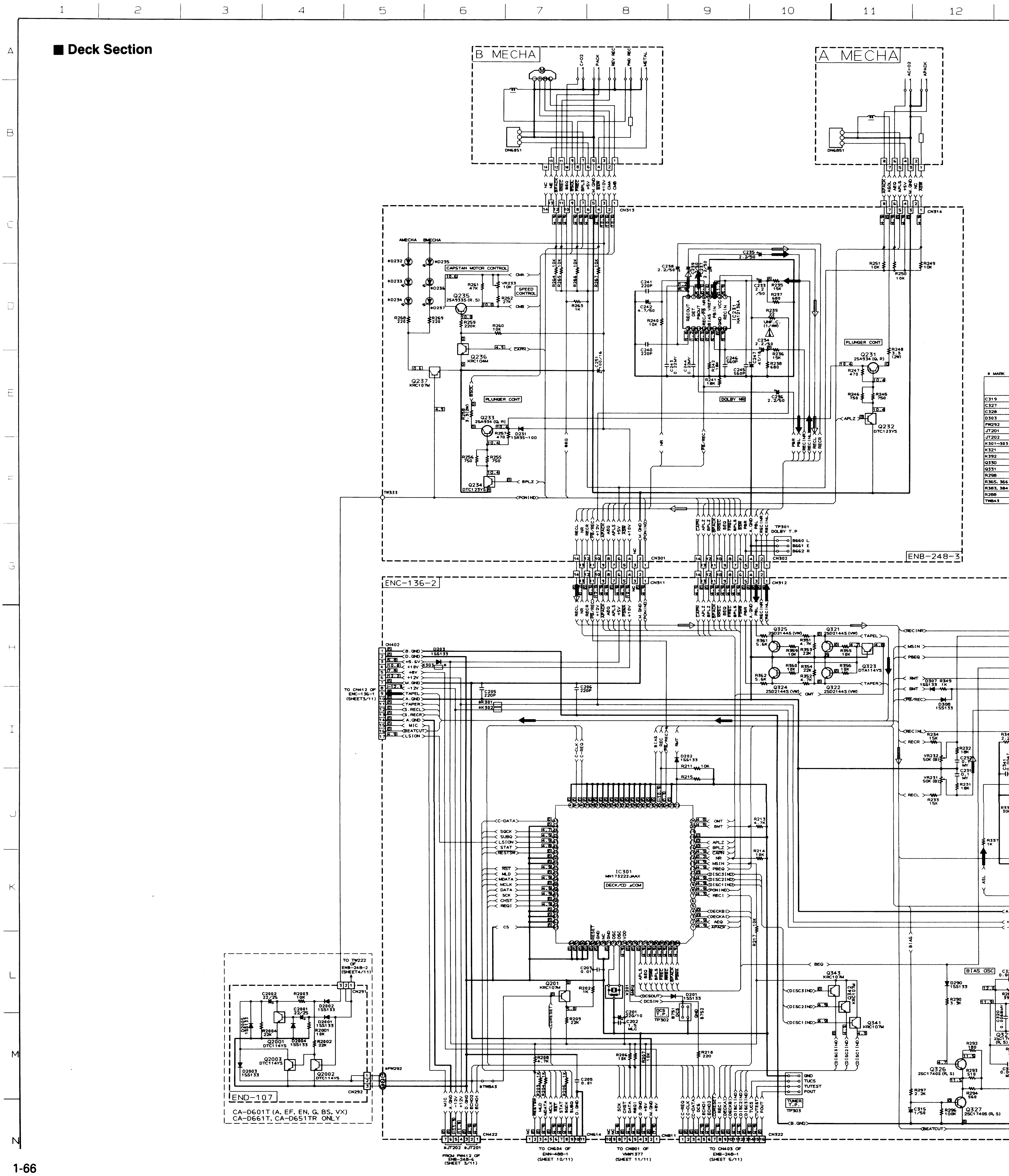
* MARK LIST

FUNCTION	SYMBOL NO.	D601T U, US, UP, UT, UB	D601T A	D601T BS, EF, EN, G, VX	D631T EF, EN, G	D651TR EF, EN, G	D661T J, C
SPI	C453~455	USED	NONE	NONE	NONE	NONE	USED
	R445, 446	USED	NONE	NONE	NONE	NONE	USED
	R447	USED	SHORT	SHORT	SHORT	SHORT	USED
	R448	USED	NONE	NONE	NONE	NONE	USED
KARAOKE	C437~442	USED	NONE	NONE	USED	NONE	NONE
	D401, 402	USED	NONE	NONE	USED	NONE	NONE
	IC403	USED	NONE	NONE	USED	NONE	USED
	IC404	USED	NONE	NONE	USED	NONE	NONE
	R423~425	USED	NONE	NONE	USED	NONE	NONE
	R426, 427	USED	NONE	NONE	USED	NONE	SHORT
	R428~430	USED	NONE	NONE	USED	NONE	NONE
	B403, 404	NONE	USED	USED	NONE	USED	USED
MIC MIX	C451, 452	USED	NONE	NONE	USED	NONE	NONE
	R443, 444	USED	NONE	NONE	USED	NONE	NONE
	R435, 436	4.7K	3.9K	3.9K	4.7K	3.9K	3.9K
GAIN	R409, 410	4.7K	3.3K	3.3K	3.3K	3.3K	4.7K
	R457, 458	7.5K	7.5K	7.5K	7.5K	7.5K	5.6K
B. CUT	S490	NONE	NONE	USED	USED	USED	NONE
	R490	NONE	NONE	USED	USED	USED	NONE


TO CN401 OF ENB-248-1 (SHEET5/11)
TO CN402 OF ENC-136-2 (SHEET4/11)
ENC-136-1
CN412
FOR D601T U, US, UP, UT, UB ONLY
ENB-248-6
FOR D631T ONLY
MIC1 JACK
MIC2 JACK
J1101
J1102
IC912 BA15218 (1/2)
IC912 VC4580D (1/2)
MIC VOL
VR902 50K
D1146 MTZ2.4JB
TW002
TO CN422 OF ENC-136-2 (SHEET4/11)
FW412
COMPANDER, LPF & ECHO MIX
IC914 BA7725S
D/A, DELAY & A/D
IC915 BU9252S
X1101 400KHz
Q1101 KRC104M
Q1102 KRC104M
D1101 MTZ5.1JB
CN017
FROM CN007 OF ENH-302-1 (SHEET2/11)
CN701
FROM FW401 OF ENH-302-2 (SHEET2/11)
CN016
FROM CN006 OF ENH-302-1 (SHEET2/11)
VOL AMP
IC407 BA15218 (1/2)
S.MUTE
Q401 2SD2144S (VW)
Q402 2SD2144S (VW)
Q403 KRA102M
IC405 BA15218 (1/2)
KARAOKE
ON OFF
L H

CONT	ECHO LEVEL OFF	1	2	3
ECHO1	H	L	H	L
ECHO2	H	H	L	L

■ Deck Section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C
D
E
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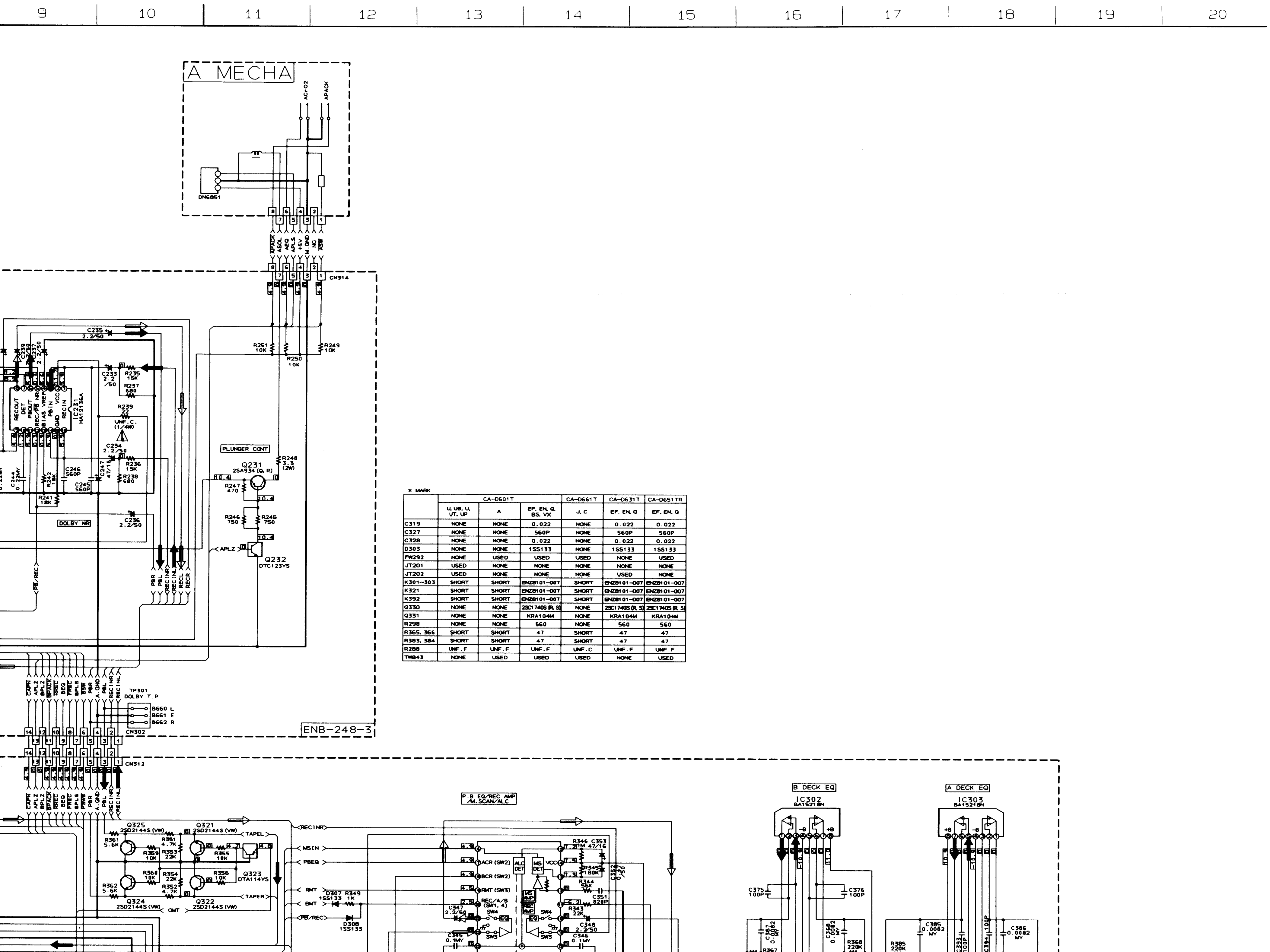
G
H
I
J
K
L
M
N
B MECHA
A MECHA
DN6851
CN313
CN314
ENB-248-3
CAPSTAN MOTOR CONTROL
SPEED CONTROL
PLUNGER CONT
DOLBY NR
IC231 HA12135A
Q235 2SA933S(R,S)
Q236 KRC104M
Q237 KRC107M
Q233 2SA934(Q,R)
Q234 DTC123YS
Q231 2SA934(Q,R)
Q232 DTC123YS
TW333
TP301 DOLBY T.P
B660 L
B661 E
B662 R
CN301
CN302
ENC-136-2
CN311
CN312
CN402
TO CN412 OF ENC-136-1 (SHEET3/11)
Q325 2SD2144S(VW)
Q321 2SD2144S(VW)
Q322 2SD2144S(VW)
Q324 2SD2144S(VW)
Q323 DTA114YS
IC301 MN173222JAAX
DECK/CD µCOM
Q201 KRC107M
DCS T.P. TP302
Q343 KRC107M
Q342 KRC107M
Q341 KRC107M
BIAS OSC
Q326 2SC1740S(R,S)
Q327 2SC1740S(R,S)
TUNER T.P. TP303
TO TW222 OF ENB-248-2 (SHEET4/11)
Q2001 DTC114YS
Q2002 DTC114YS
Q2003 DTC114YS
END-107
CA-D601T (A, EF, EN, G, BS, VX)
CA-D661T, CA-D651TR ONLY
CN291
CN292
PW292
CN422
FROM PW412 OF ENB-248-4 (SHEET 3/11)
CN614
TO CN604 OF ENN-488-1 (SHEET 10/11)
CN811
TO CN801 OF VMM1377 (SHEET 11/11)
CN322
TO CN403 OF ENB-248-1 (SHEET 5/11)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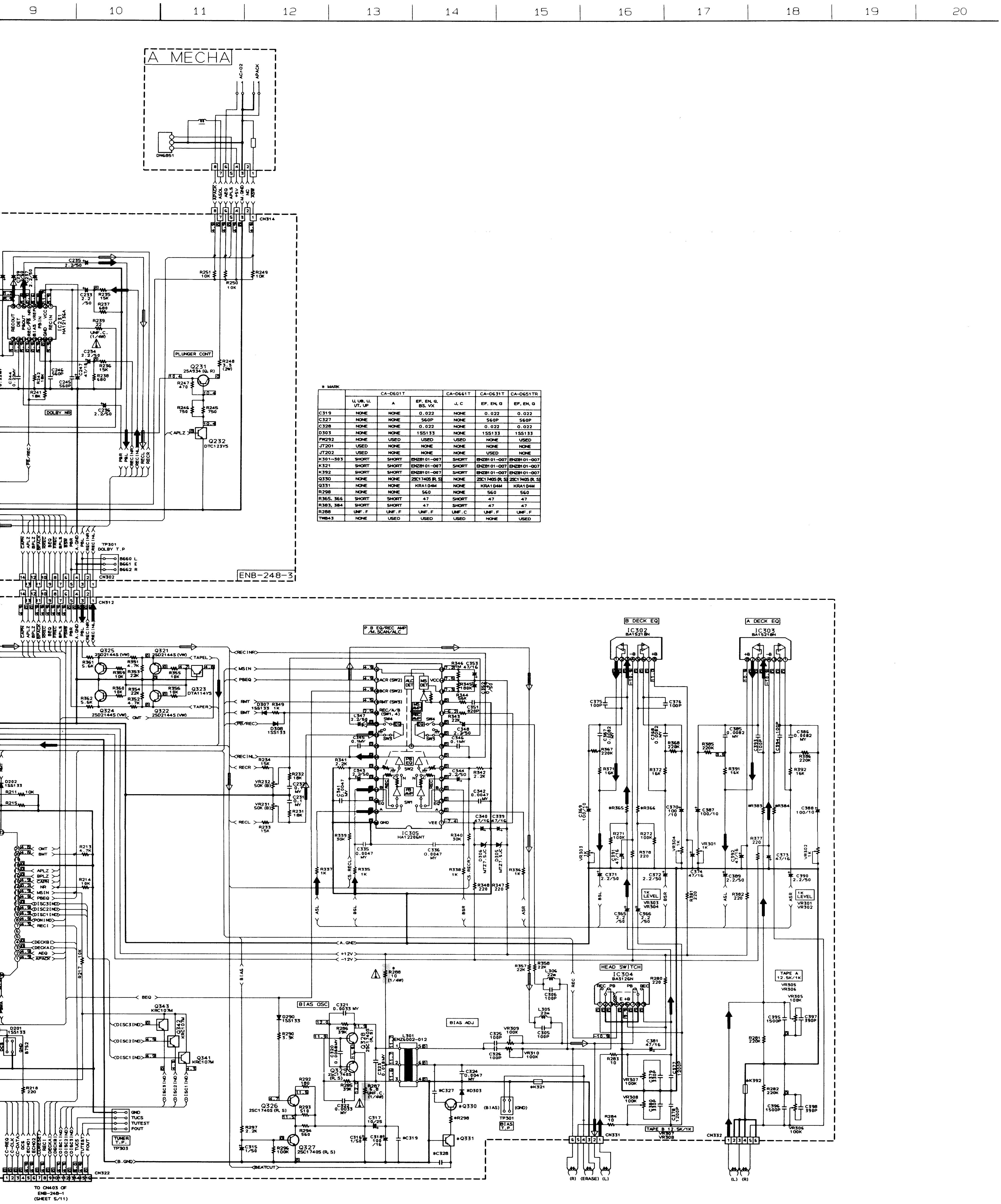
A MECHA
DN6851
CN314
ENB-248-3
DOLBY NR
PLUNGER CONT
IC231 HA12134A
Q231 2SA934 (Q, R)
Q232 DTC123YS
TP301 DOLBY T.P
CN302
CN312
P B EQ/REC AMP /M.SCAN/ALC
IC305 HA12206NT
B DECK EQ
IC302 BA15218N
A DECK EQ
IC303 BA15218N
1K LEVEL
HEAD SWITCH
IC304 BA3126N
TAPE A 12.5K/1K
TAPE B 12.5K/1K
BIAS OSC
BIAS ADJ
L301 ENZ6002-012
TP301 BIAS T.P.
TUNER T.P.
TP303
CN331
CN332
CN322
(R) (ERASE) (L)
(L) (R)
TO CN403 OF EMB-248-1 (SHEET 5/11)

* MARK

	CA-D601T			CA-D661T	CA-D631T	CA-D651TR
	U, UB, U, UT, UP	A	EF, EN, G, BS, VX	J, C	EF, EN, G	EF, EN, G
C319	NONE	NONE	0.022	NONE	0.022	0.022
C327	NONE	NONE	560P	NONE	560P	560P
C328	NONE	NONE	0.022	NONE	0.022	0.022
D303	NONE	NONE	1SS133	NONE	1SS133	1SS133
FW292	NONE	USED	USED	USED	NONE	USED
JT201	USED	NONE	NONE	NONE	NONE	NONE
JT202	USED	NONE	NONE	NONE	USED	NONE
K301~303	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
K321	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
K392	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
Q330	NONE	NONE	2SC1740S (R, S)	NONE	2SC1740S (R, S)	2SC1740S (R, S)
Q331	NONE	NONE	KRA104M	NONE	KRA104M	KRA104M
R298	NONE	NONE	560	NONE	560	560
R365, 366	SHORT	SHORT	47	SHORT	47	47
R383, 384	SHORT	SHORT	47	SHORT	47	47
R288	UNF.F	UNF.F	UNF.F	UNF.C	UNF.F	UNF.F
TW843	NONE	USED	USED	USED	NONE	USED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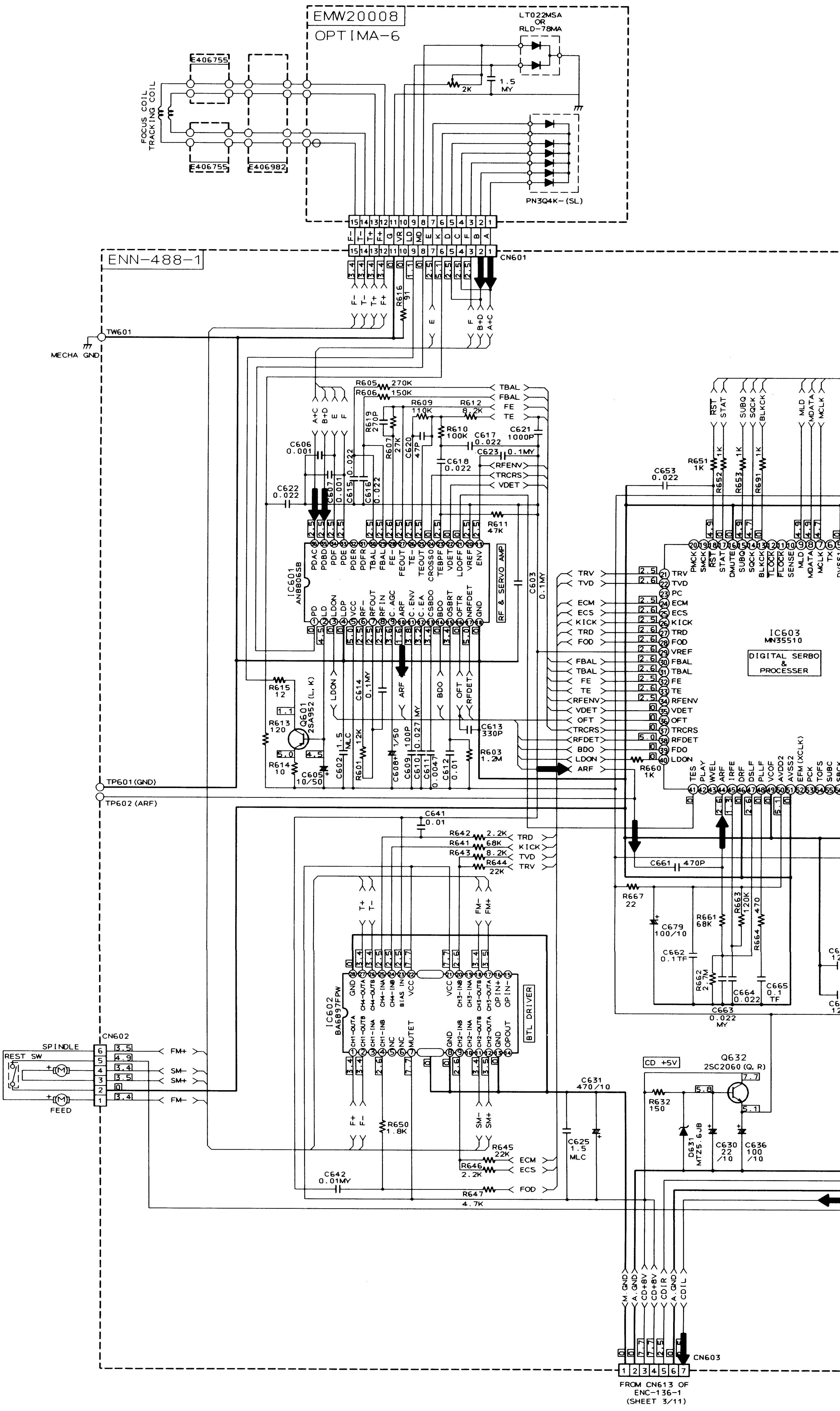
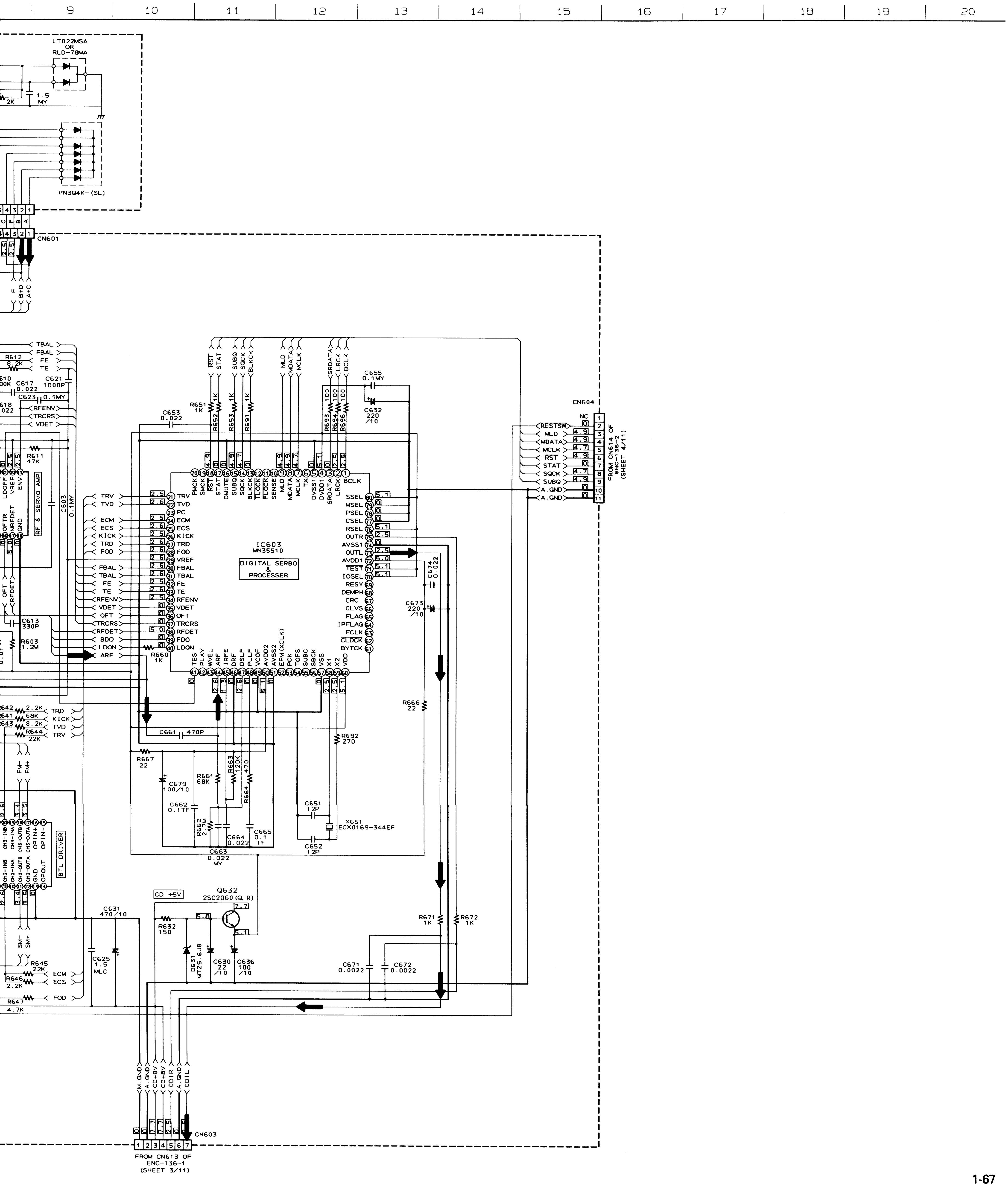
A MECHA
DN6851
CN314
R251 10K
R250 10K
R249 10K
C235 2.2/50
IC231 HA12134A
R235 15K
R237 680
R239 22 UNF.C. (1/4W)
PLUNGER CONT
Q231 2SA934 (Q, R)
R248 3.3 (2W)
R247 470
R246 750
R245 750
Q232 DTC123YS
APLZ
DOLBY NR
C236 2.2/50
TP301 DOLBY T.P
B660 L
B661 E
B662 R
CN302
ENB-248-3
CN312
P.B EQ/REC AMP /M.SCAN/ALC
Q325 2SD2144S (VW)
Q321 2SD2144S (VW)
Q323 DTA114YS
Q324 2SD2144S (VW)
Q322 2SD2144S (VW)
TAPEL
TAPER
RECINR
MSIN
PBEQ
RMT
BMT
PB/REC
RECINL
RECR
RECL
D307 1SS133
D308 1SS133
VR232 50K (B)
VR231 50K (B)
IC305 HA12206NT
ALC DET
MS DET
SW1
SW2
SW3
SW4
SW5
ASL
BSL
BSR
ASR
A.GND
+12V
-12V
BIAS
BEQ
B DECK EQ
IC302 BA15218N
A DECK EQ
IC303 BA15218N
1K LEVEL
VR303 VR304
VR301 VR302
HEAD SWITCH
IC304 BA3126N
REC PB PB REC
BIAS OSC
BIAS ADJ
L301 ENZ6002-012
Q328 2SC1740S (R, S)
Q329 2SC1740S (R, S)
Q326 2SC1740S (R, S)
Q327 2SC1740S (R, S)
Q330
Q331
D290 1SS133
D303
R288 10 (1/4W)
VR309 100K
VR310 100K
L306 22m
L305 22m
TP301 BIAS T.P
(BIAS) (GND)
VR307 100K
VR308 100K
TAPE B 12.5K/1K
VR307 VR308
TAPE A 12.5K/1K
VR305 VR306
CN331
CN332
(R) (ERASE) (L)
(L) (R)
Q343 KRC107M
Q342 KRC107M
Q341 KRC107M
DISC3IN
DISC2IN
DISC1IN
D202 1SS133
D201 1SS133
GND
TUCS
TUTEST
FOUT
TUNER T.P. TP303
B.GND
BEATCUT
CN322
TO CN403 OF ENB-248-1 (SHEET 5/11)
OMT
BMT
APLZ
BPLZ
CAPN
NR
MSIN
PBEQ
DISC3IN
DISC2IN
DISC1IN
PONIN
RECI
DECKB
DECKA
AEQ
APACK

＊ MARK

	CA-D601T			CA-D661T	CA-D631T	CA-D651TR
	U, UB, U, VT, UP	A	EF, EN, G, BS, VX	J, C	EF, EN, G	EF, EN, G
C319	NONE	NONE	0.022	NONE	0.022	0.022
C327	NONE	NONE	560P	NONE	560P	560P
C328	NONE	NONE	0.022	NONE	0.022	0.022
D303	NONE	NONE	1SS133	NONE	1SS133	1SS133
FW292	NONE	USED	USED	USED	NONE	USED
JT201	USED	NONE	NONE	NONE	NONE	NONE
JT202	USED	NONE	NONE	NONE	USED	NONE
K301~303	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
K321	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
K392	SHORT	SHORT	ENZ8101-007	SHORT	ENZ8101-007	ENZ8101-007
Q330	NONE	NONE	2SC1740S (R, S)	NONE	2SC1740S (R, S)	2SC1740S (R, S)
Q331	NONE	NONE	KRA104M	NONE	KRA104M	KRA104M
R298	NONE	NONE	560	NONE	560	560
R365, 366	SHORT	SHORT	47	SHORT	47	47
R383, 384	SHORT	SHORT	47	SHORT	47	47
R288	UNF.F	UNF.F	UNF.F	UNF.C	UNF.F	UNF.F
TW843	NONE	USED	USED	USED	NONE	USED

■ CD Section


EMW20008
OPTIMA-6
LT022MSA OR RLD-78MA
2K
1.5 MY
FOCUS COIL
TRACKING COIL
E406755
E406982
PN3Q4K-(SL)
F- T- T+ F+ G VR LD MD E K D C F B A
CN601
ENN-488-1
R616 91
TW601
MECHA GND
F B+D A+C
E
R605 270K
R606 150K
R609 110K
R612 8.2K
R610 100K
C617 0.022
C621 1000P
C623 0.1MY
C618 0.022
R619 270P
R607 27K
C620 47P
C606 0.001
C622 0.022
C615 0.022
C616 0.001
C607 0.022
R611 47K
TBAL FBAL FE TE RFENV TRCRS VDET
IC601 AN8805SB
RF & SERVO AMP
C603 0.1MY
R615 12
R613 120
Q601 2SA952 (L, K)
R614 10
C605 10/50
C602 1.5 MLC
R601 12K
C614 0.1MY
C608 1/50
C609 100P
C610 0.027 MY
C611 0.0047
C612 0.01
C613 330P
R603 1.2M
LDON ARF BDO OFT RFDET
TP601 (GND)
TP602 (ARF)
IC603 MN35510
DIGITAL SERBO & PROCESSER
TRV TVD ECM ECS KICK TRD FOD FBAL TBAL FE TE RFENV VDET OFT TRCRS RFDET BDO LDON ARF
RST STAT SUBQ SQCK BLKCK MLD MDATA MCLK
C653 0.022
R651 1K
R652 1K
R653 1K
R691 1K
R660 1K
C661 470P
R667 22
C679 100/10
R661 68K
R663 120K
R664 470
C662 0.1TF
R662 2.7M
C664 0.022
C665 0.1 TF
C663 0.022 MY
C641 0.01
R642 2.2K
R641 68K
R643 8.2K
R644 22K
TRD KICK TVD TRV
T+ T-
FM- FM+
IC602 BA6897FPW
BTL DRIVER
F+ F-
R650 1.8K
SM- SM+
R645 22K
R646 2.2K
ECM ECS FOD
R647 4.7K
C642 0.01MY
C631 470/10
C625 1.5 MLC
CN602
SPINDLE
REST SW
FEED
FM+ SM- SM+ FM-
CD +5V
Q632 2SC2060 (Q, R)
R632 150
D631 MTZ5.6JB
C630 22 /10
C636 100 /10
M.GND A.GND CD+8V CD+8V CDIR A.GND CDIL
CN603
FROM CN613 OF ENC-136-1 (SHEET 3/11)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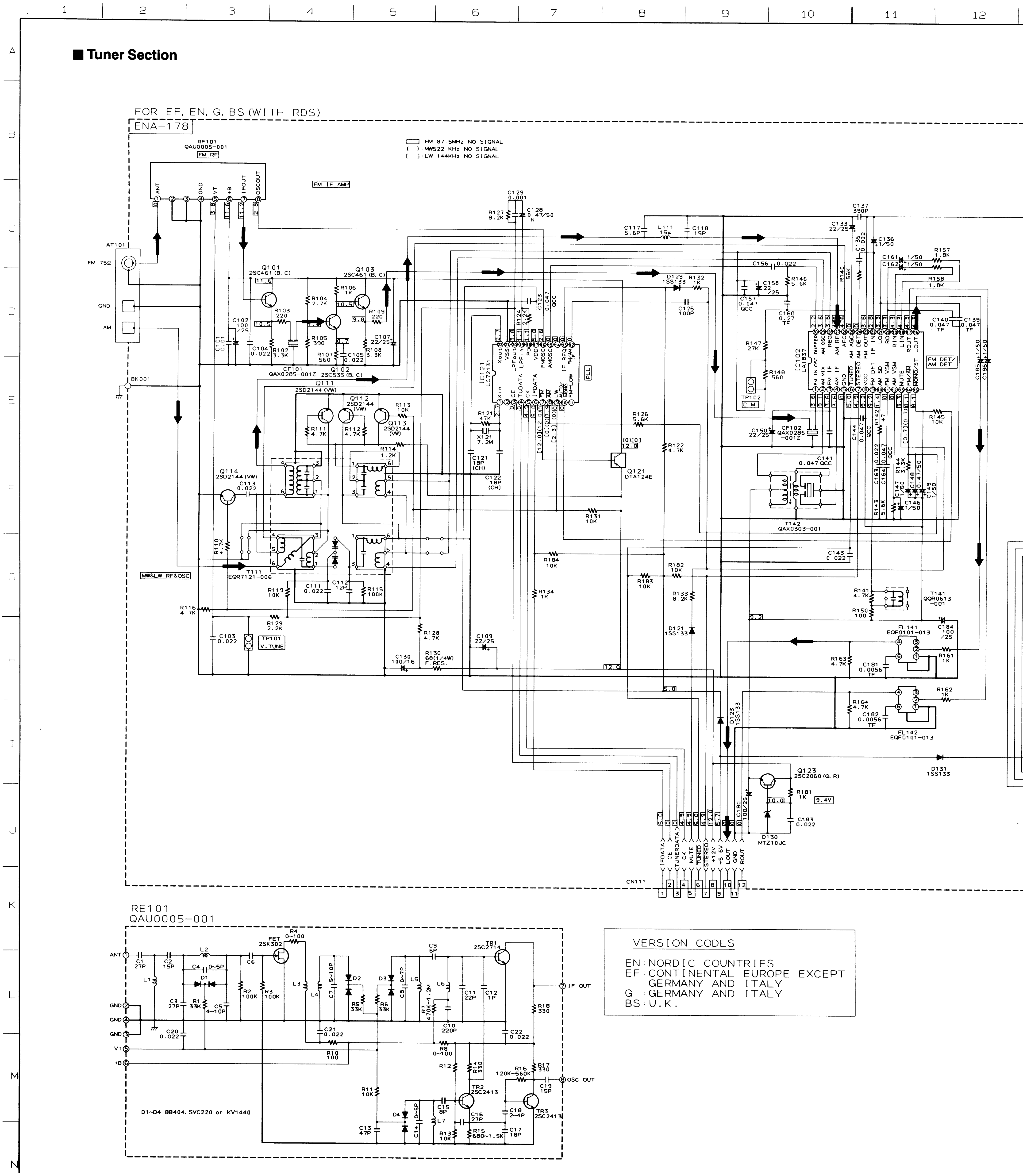
LT022MSA OR RLD-78MA
PN3Q4K-(SL)
CN601
IC603
MN35510
DIGITAL SERBO & PROCESSER
RF & SERVO AMP
BTL DRIVER
CN603
FROM CN613 OF ENC-136-1 (SHEET 3/11)
CN604
FROM CN614 OF ENC-136-2 (SHEET 4/11)
Q632
2SC2060 (Q, R)
CD +5V
D631 MTZ5.6JB
X651
ECX0169-344EF
M GND
A GND
CD+8V
CD+8V
CDIR
A GND
CDIL
RESTSW
MLD
MDATA
MCLK
RST
STAT
SQCK
SUBQ
A.GND
A.GND
NC
TRV
TVD
ECM
ECS
KICK
TRD
FOD
FBAL
TBAL
FE
TE
RFENV
VDET
OFT
TRCRS
RFDET
BDO
LDON
ARF
C631 470/10
C625 1.5 MLC
C653 0.022
C655 0.1MY
C632 220/10
C661 470P
C662 0.1TF
C663 0.022 MY
C664 0.022
C665 0.1 TF
C679 100/10
C651 12P
C652 12P
C671 0.0022
C672 0.0022
C673 220/10
C674 0.022
C630 22/10
C636 100/10
R632 150
R651 1K
R660 1K
R661 68K
R662 2.7M
R663 120K
R664 470
R666 22
R667 22
R671 1K
R672 1K
R692 270
R693 100
R694 100
R696 100

■ Tuner Section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A
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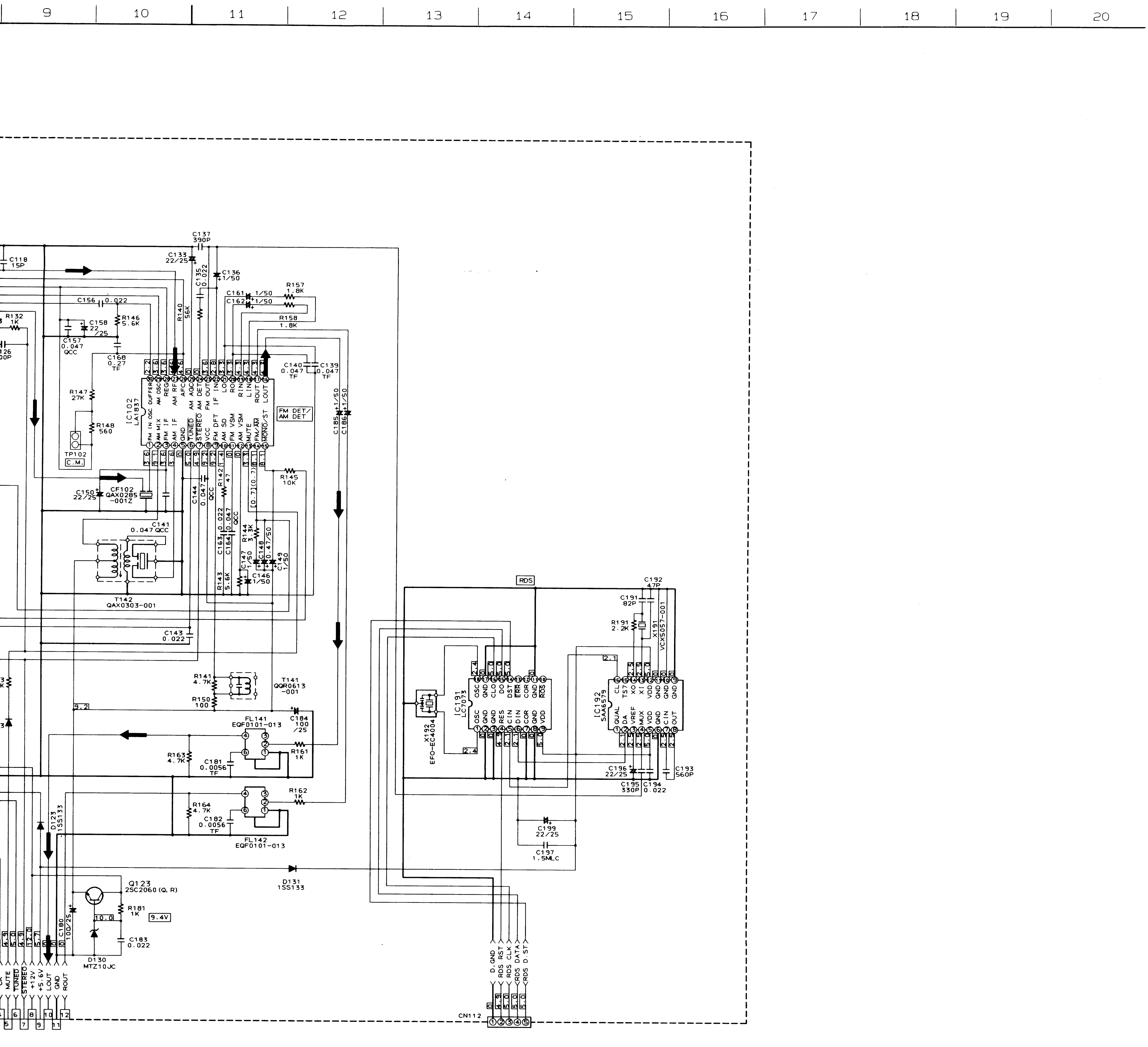
I
J
K
L
M
N
FOR EF, EN, G, BS (WITH RDS)
ENA-178
RF101
QAU0005-001
FM RF
▭ FM 87.5MHz NO SIGNAL
( ) MW522 KHz NO SIGNAL
[ ] LW 144KHz NO SIGNAL
FM IF AMP
ANT
GND
VT
+B
IFOUT
OSCOUT
AT101
FM 75Ω
GND
AM
BK001
Q101
2SC461 (B, C)
Q103
2SC461 (B, C)
Q102
2SC535 (B, C)
CF101
QAX0285-001Z
Q111
2SD2144 (VW)
Q112
2SD2144 (VW)
Q113
2SD2144 (VW)
Q114
2SD2144 (VW)
T111
EQR7121-006
MW&LW RF&OSC
TP101
V.TUNE
IC121
LC72131
PLL
X121
7.2M
Q121
DTA124E
IC102
LA1837
FM DET/
AM DET
TP102
C.M.
CF102
QAX0285
-001Z
T142
QAX0303-001
T141
QQR0613
-001
FL141
EQF0101-013
FL142
EQF0101-013
D129
1SS133
D121
1SS133
D123
1SS133
D131
1SS133
Q123
2SC2060 (Q, R)
D130
MTZ10JC
CN111
IFDATA
CE
TUNERDATA
CK
MUTE
TUNED
STEREO
+12V
+5.6V
LOUT
GND
ROUT
RE101
QAU0005-001
FET
2SK302
TR1
2SC2714
TR2
2SC2413
TR3
2SC2413
IF OUT
OSC OUT
D1~D4 : BB404, SVC220 or KV1440

VERSION CODES

EN : NORDIC COUNTRIES
EF : CONTINENTAL EUROPE EXCEPT
GERMANY AND ITALY
G : GERMANY AND ITALY
BS : U.K.


9
10
11
12
13
14
15
16
17
18
19
20
C137 390P
C133 22/25
C136 1/50
C135 0.022
C118 15P
C156 0.022
R146 5.6K
C158 22/25
R132 1K
C157 0.047 QCC
C168 0.27 TF
R140 56K
C161 1/50
C162 1/50
R157 1.8K
R158 1.8K
C140 0.047 TF
C139 0.047 TF
R147 27K
R148 560
TP102
C.M.
IC102 LA1837
FM IN OSC DUFFER
AM OSC
REG
AM RF
AFC
AM AGC
AM DET
FM OUT
IF IN
LO
RO
RIN
LIN
ROUT
LOUT
FM IN
AM MIX
FM IF
AM IF
GND
TUNED
STEREO
VCC
FM DET
AM SD
FM VSM
AM VSM
MUTE
FM/AM
MONO/ST
FM DET/ AM DET
C185 1/50
C186 1/50
C150 22/25
CF102 QAX0285 -001Z
C144 0.047
QCC
R142 47
R145 10K
C141 0.047 QCC
C163 0.022
C164 0.047
QCC
R144 3.3K
C148 0.47/50
C149 1/50
C147 1/50
C146 1/50
R143 5.6K
T142 QAX0303-001
C143 0.022
R141 4.7K
R150 100
T141 QQR0613 -001
9.2
FL141 EQF0101-013
C184 100 /25
R163 4.7K
C181 0.0056 TF
R161 1K
R164 4.7K
C182 0.0056 TF
R162 1K
FL142 EQF0101-013
D123 1SS133
D131 1SS133
Q123 2SC2060(Q, R)
R181 1K
9.4V
10.0
C180 100/25
C183 0.022
D130 MTZ10JC
MUTE
TUNED
STEREO
+12V
+5.6V
LOUT
GND
ROUT
5
6
7
8
9
10
11
12
RDS
C192 47P
C191 82P
R191 2.2K
X191 VCX5057-001
X192 EFO-EC4004
IC191 LC7073
OSC
GND
CLO
DO
DST
ERR
COR
GND
RDS
GND
RES
CIN
DIN
COR
GND
VDD
2.4
IC192 SAA6579
CL
TS
XO
XI
VDD
GND
GND
GND
QUAL
QA
VREF
MUX
VDD
GND
CIN
OUT
2.1
C196 22/25
C195 330P
C194 0.022
C193 560P
C199 22/25
C197 1.5MLC
D.GND
RDS RST
RDS CLK
RDS DATA
RDS D.ST
CN112
0
4.9
5.0
5.0
5.0

N CODES

C COUNTRIES
NENTAL EUROPE EXCEPT
ANY AND ITALY
ANY AND ITALY

■ Changer Section

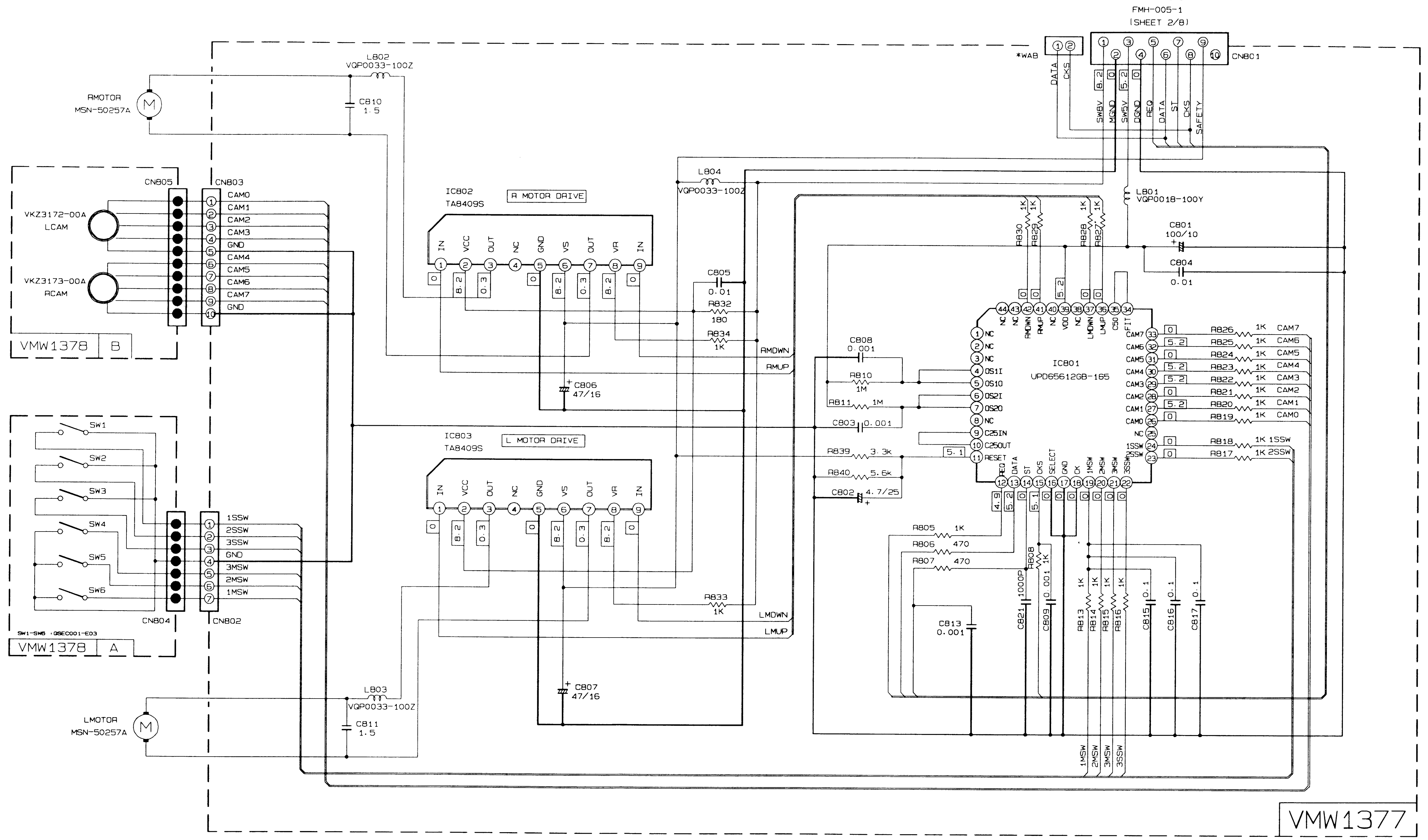
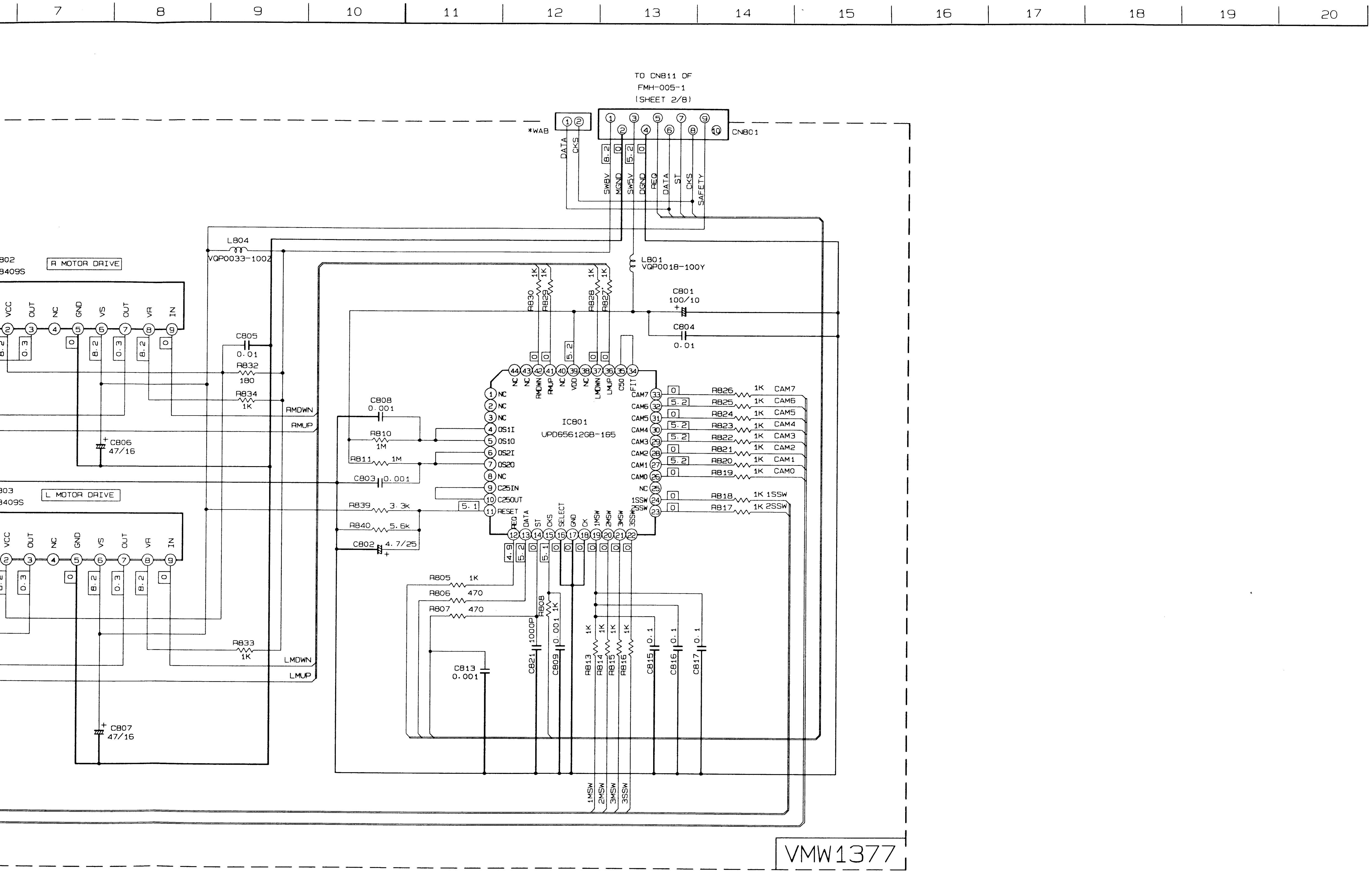

TO CN811 OF
FMH-005-1
(SHEET 2/8)
*WAB
DATA
CKS
CN801
SW8V
MGND
SW5V
DGND
REQ
DATA
ST
CKS
SAFETY
8.2
5.2
L802
VQP0033-100Z
C810
1.5
RMOTOR
MSN-50257A
CN805
CN803
VKZ3172-00A
LCAM
VKZ3173-00A
RCAM
CAM0
CAM1
CAM2
CAM3
GND
CAM4
CAM5
CAM6
CAM7
GND
VMW1378 B
IC802
TA8409S
R MOTOR DRIVE
IN
VCC
OUT
NC
GND
VS
OUT
VR
IN
L804
VQP0033-100Z
C805
0.01
R832
180
R834
1K
RMDWN
RMUP
C806
47/16
L801
VQP0018-100Y
C801
100/10
C804
0.01
R830
R829
R828
R827
1K
C808
0.001
R810
1M
R811
1M
C803
0.001
R839
3.3k
R840
5.6k
C802
4.7/25
IC801
UPD65612GB-165
NC
OS1I
OS1O
OS2I
OS2O
C25IN
C25OUT
RESET
REQ
DATA
ST
CKS
SELECT
GND
CK
1MSW
2MSW
3MSW
3SSW
RMDWN
RMUP
VDD
LMDWN
LMUP
C50
FIT
CAM7
CAM6
CAM5
CAM4
CAM3
CAM2
CAM1
CAM0
1SSW
2SSW
R826
R825
R824
R823
R822
R821
R820
R819
R818
R817
SW1
SW2
SW3
SW4
SW5
SW6
CN804
CN802
1SSW
2SSW
3SSW
GND
3MSW
2MSW
1MSW
SW1-SW6 : QSEC001-E03
VMW1378 A
IC803
TA8409S
L MOTOR DRIVE
R833
1K
LMDWN
LMUP
C807
47/16
R805
1K
R806
470
R807
470
R808
1K
C813
0.001
C821
1000P
C809
0.001
R813
R814
R815
R816
C815
C816
C817
0.1
L803
VQP0033-100Z
C811
1.5
LMOTOR
MSN-50257A
VMW1377

TABLE 1 CAM PATTERN LIST

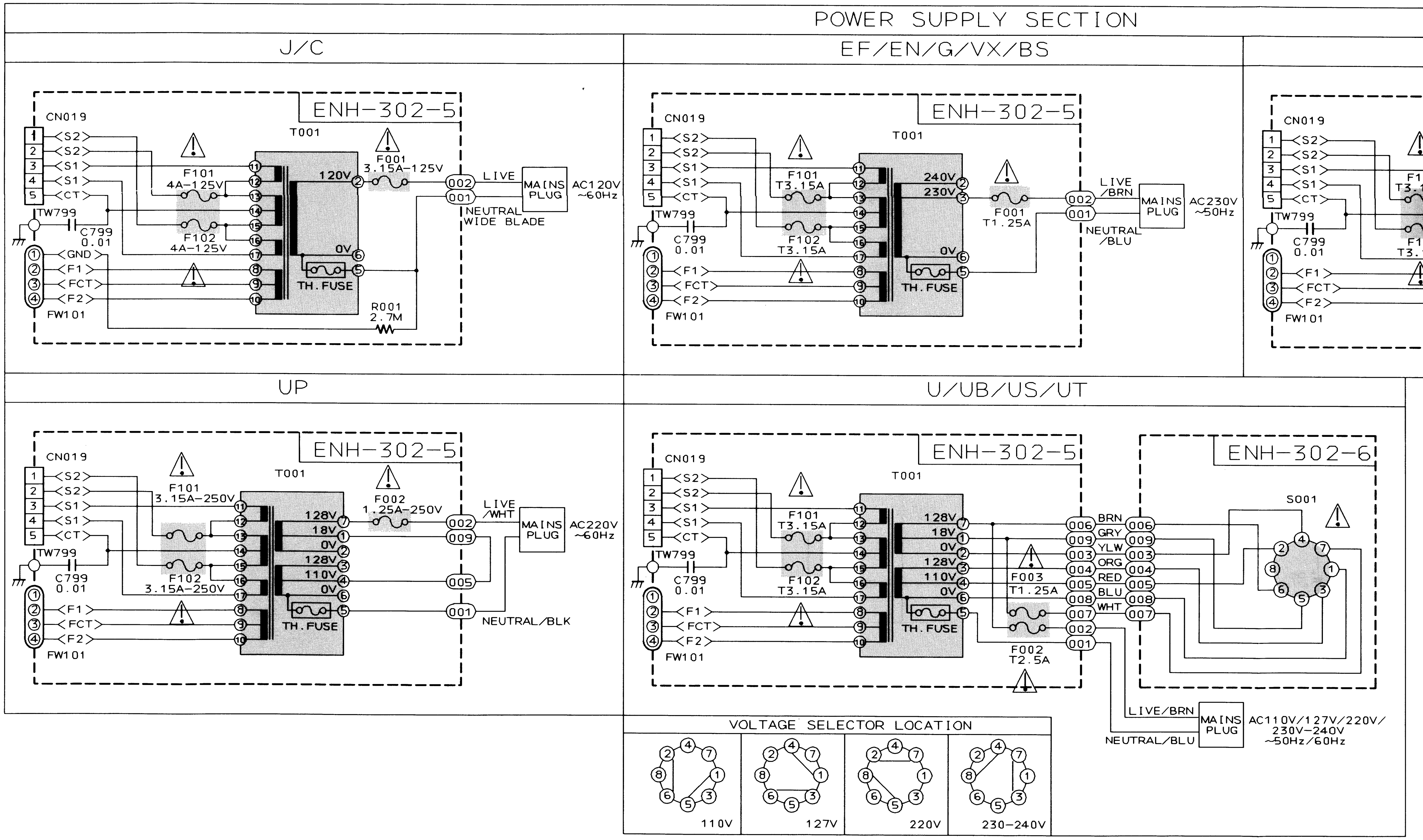
CAM NO / POSITION	LCAM 0	LCAM 1	LCAM 2	LCAM 3	COM	RCAM 4	RCAM 5	RCAM 6	RCAM 7	POSITION
MAIN TRAY1	0	1	1	1	0	1	1	1	0	EMERGENCY
SUB TRAY1	0	0	1	1	0	1	1	0	0	TRAY1 STANDBY
CAMR 1	0	1	0	1	0	1	0	1	0	TRAY1 CHECKING
MAIN TRAY2	1	0	0	1	0	1	0	0	1	TRAY2 STANDBY
SUB TRAY2	1	1	1	0	0	0	1	1	1	TRAY2 CHECKING
CAMR 2	1	0	1	0	0	0	1	0	1	TRAY3 STANDBY
MAIN TRAY3	1	1	0	0	0	0	0	1	1	TRAY3 CHECKING
SUB TRAY3	1	0	0	0	0					
OFF	1	1	1	1	0	1	1	1	1	OFF

0=0V
1=5V


7
8
9
10
11
12
13
14
15
16
17
18
19
20
TO CN811 OF
FMH-005-1
(SHEET 2/8)
*WAB
DATA
CKS
CN801
SWBV
MGND
SW5V
DGND
REQ
DATA
ST
CKS
SAFETY
8.2
0
5.2
0
L804
VQP0033-100Z
L801
VQP0018-100Y
R MOTOR DRIVE
L MOTOR DRIVE
VCC
OUT
NC
GND
VS
OUT
VR
IN
C805
0.01
R832
180
R834
1K
R833
1K
C806
47/16
C807
47/16
RMDWN
RMUP
LMDWN
LMUP
C801
100/10
C804
0.01
R830
R829
R828
R827
1K
C808
0.001
R810
1M
R811
1M
C803
0.001
R839
3.3K
R840
5.6K
C802
4.7/25
IC801
UPD65612GB-165
NC
OS1I
OS1O
OS2I
OS2O
C25IN
C25OUT
RESET
REQ
DATA
ST
CKS
SELECT
GND
CK
1MSW
2MSW
3MSW
3SSW
1SSW
2SSW
CAM0
CAM1
CAM2
CAM3
CAM4
CAM5
CAM6
CAM7
RMDWN
RMUP
VDD
LMDWN
LMUP
C50
FIT
R826
R825
R824
R823
R822
R821
R820
R819
R818
R817
5.1
4.9
5.2
R805
1K
R806
470
R807
470
R808
1K
C813
0.001
C821
1000P
C809
0.001
R813
R814
R815
R816
C815
C816
C817
0.1
1MSW
2MSW
3MSW
3SSW
VMW1377

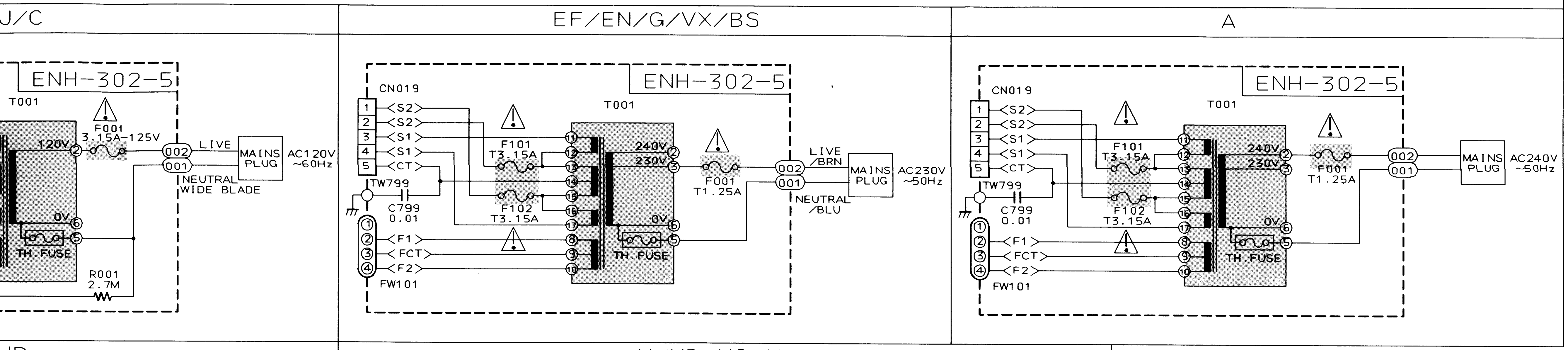
■ Power Supply Section

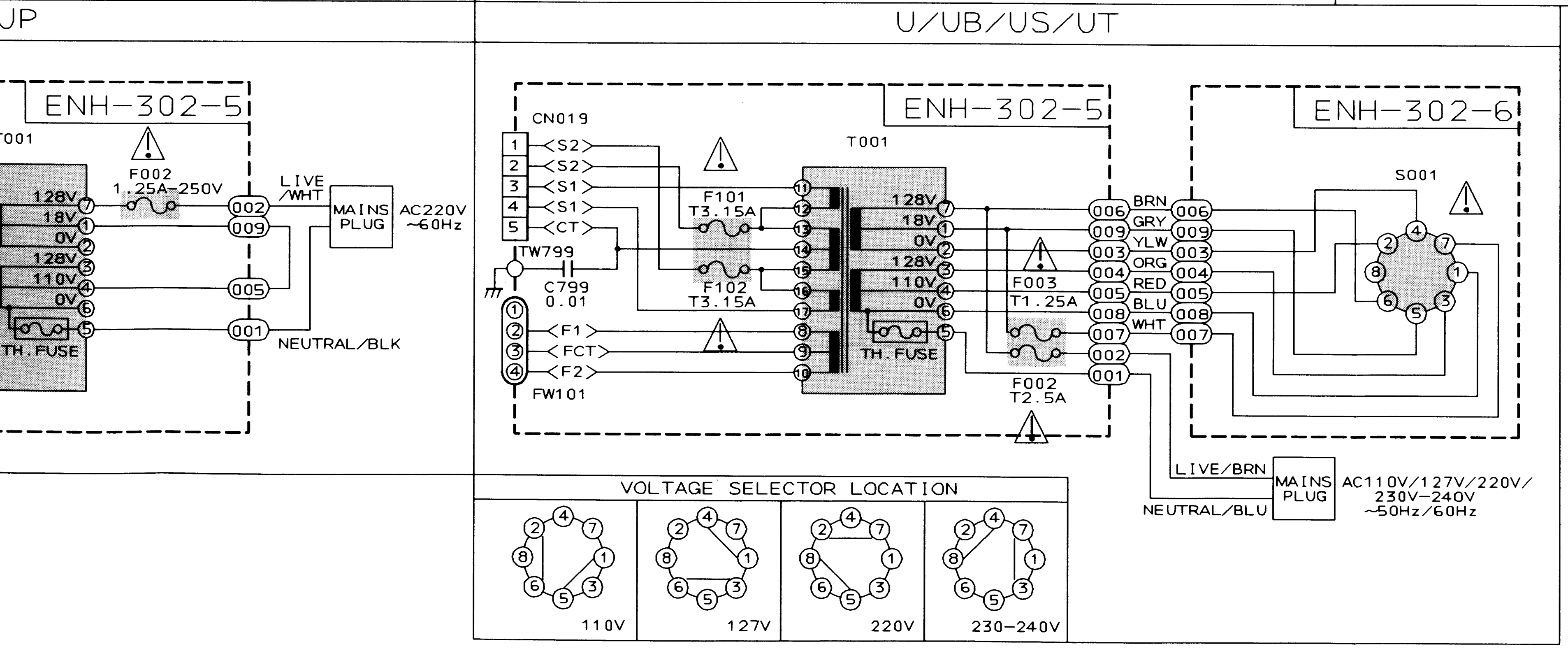
NOTES:
MARK (*) IS TO SHOW DEVIATION IN VERSIONS.
DETAILS ARE EXPLAINED NEAR THE MARK.


POWER SUPPLY SECTION
J/C
EF/EN/G/VX/BS
UP
U/UB/US/UT
ENH-302-5
ENH-302-6
CN019
<S2>
<S1>
<CT>
TW799
C799
0.01
<GND>
<F1>
<FCT>
<F2>
FW101
T001
F101
4A-125V
F102
4A-125V
F001
3.15A-125V
120V
0V
TH. FUSE
R001
2.7M
LIVE
NEUTRAL
WIDE BLADE
MAINS PLUG
AC120V ~60Hz
F101
T3.15A
F102
T3.15A
240V
230V
F001
T1.25A
LIVE /BRN
NEUTRAL /BLU
AC230V ~50Hz
F101
3.15A-250V
F102
3.15A-250V
F002
1.25A-250V
128V
18V
110V
LIVE /WHT
NEUTRAL/BLK
AC220V ~60Hz
F003
T1.25A
F002
T2.5A
BRN
GRY
YLW
ORG
RED
BLU
WHT
S001
LIVE/BRN
NEUTRAL/BLU
AC110V/127V/220V/ 230V-240V ~50Hz/60Hz
VOLTAGE SELECTOR LOCATION
110V
127V
220V
230-240V

NOTES :
MARK (*) IS TO SHOW DEVIATION IN VERSIONS.
DETAILS ARE EXPLAINED NEAR THE MARK.

POWER SUPPLY SECTION


J/C
ENH-302-5
T001
120V
F001
3.15A-125V
002
001
LIVE
NEUTRAL
WIDE BLADE
MAINS PLUG
AC120V ~60Hz
0V
TH. FUSE
R001
2.7M
EF/EN/G/VX/BS
ENH-302-5
CN019
S2
S2
S1
S1
CT
TW799
C799
0.01
F101
T3.15A
F102
T3.15A
T001
240V
230V
0V
TH. FUSE
F1
FCT
F2
FW101
F001
T1.25A
002
001
LIVE /BRN
NEUTRAL /BLU
MAINS PLUG
AC230V ~50Hz
A
ENH-302-5
CN019
T001
F101
T3.15A
F102
T3.15A
240V
230V
0V
TH. FUSE
F001
T1.25A
002
001
MAINS PLUG
AC240V ~50Hz
FW101

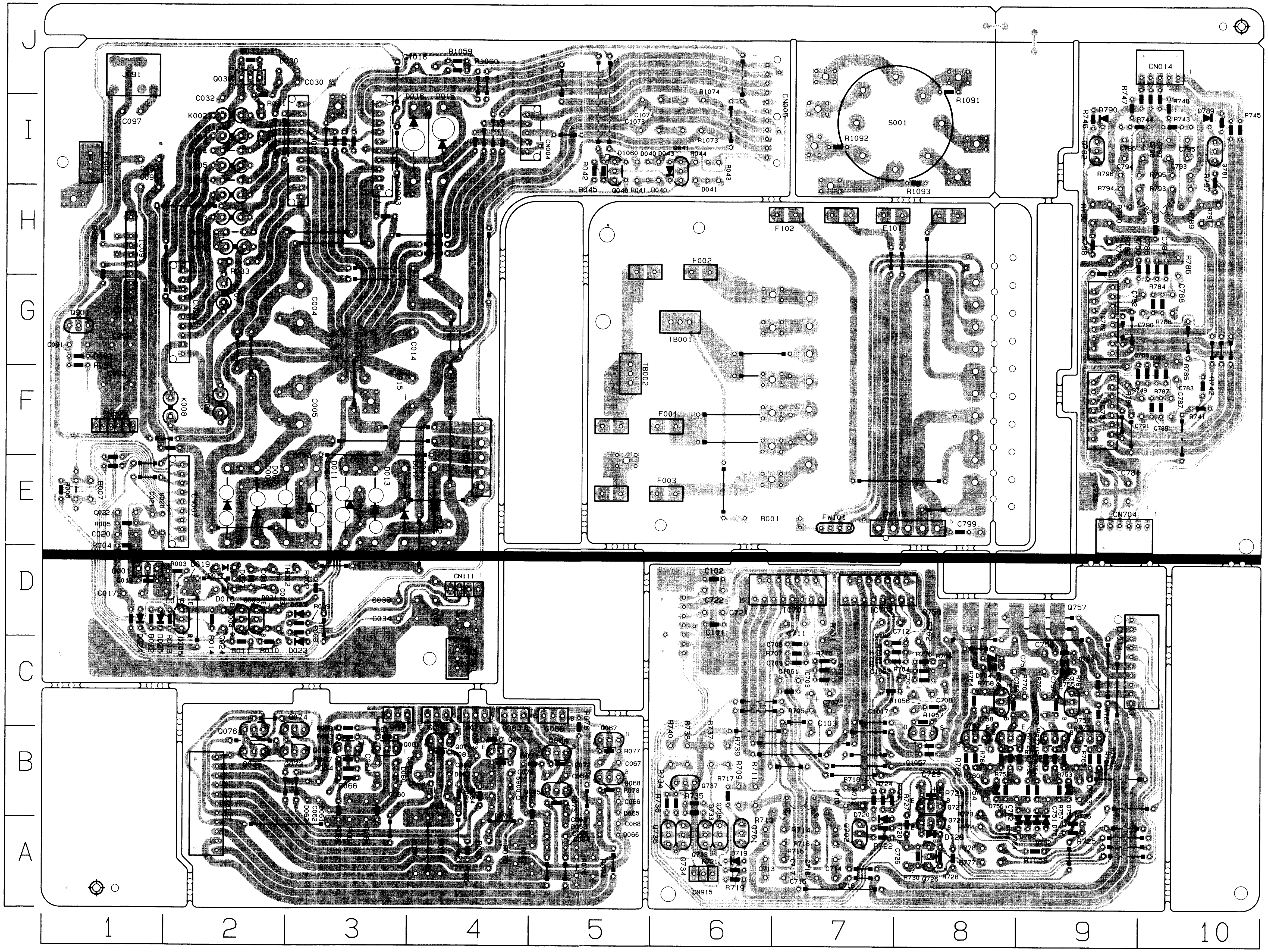

UP
ENH-302-5
T001
128V
18V
0V
128V
110V
0V
TH. FUSE
F002
1.25A-250V
002
009
005
001
LIVE /WHT
NEUTRAL/BLK
MAINS PLUG
AC220V ~60Hz
U/UB/US/UT
ENH-302-5
CN019
S2
S2
S1
S1
CT
TW799
C799
0.01
F101
T3.15A
F102
T3.15A
T001
128V
18V
0V
128V
110V
0V
TH. FUSE
F1
FCT
F2
FW101
F003
T1.25A
F002
T2.5A
006 BRN
009 GRY
003 YLW
004 ORG
005 RED
008 BLU
007 WHT
002
001
ENH-302-6
S001
LIVE/BRN
NEUTRAL/BLU
MAINS PLUG
AC110V/127V/220V/ 230V-240V ~50Hz/60Hz
VOLTAGE SELECTOR LOCATION
110V
127V
220V
230-240V

VERSION CODES

J : U.S.A.
C : CANADA
EN : NORDIC COUNTRIES
EF : CONTINENTAL EUROPE EXCEPT GERMANY
G : GERMANY
VX : EASTERN EUROPE
BS : U.K.
A : AUSTRARIA
UP : KOREA
UB : HONGKONG
US : SINGAPORE
UT : TAIWAN
U : UNIVERSAL EXCEPT ALL OF ABOVES

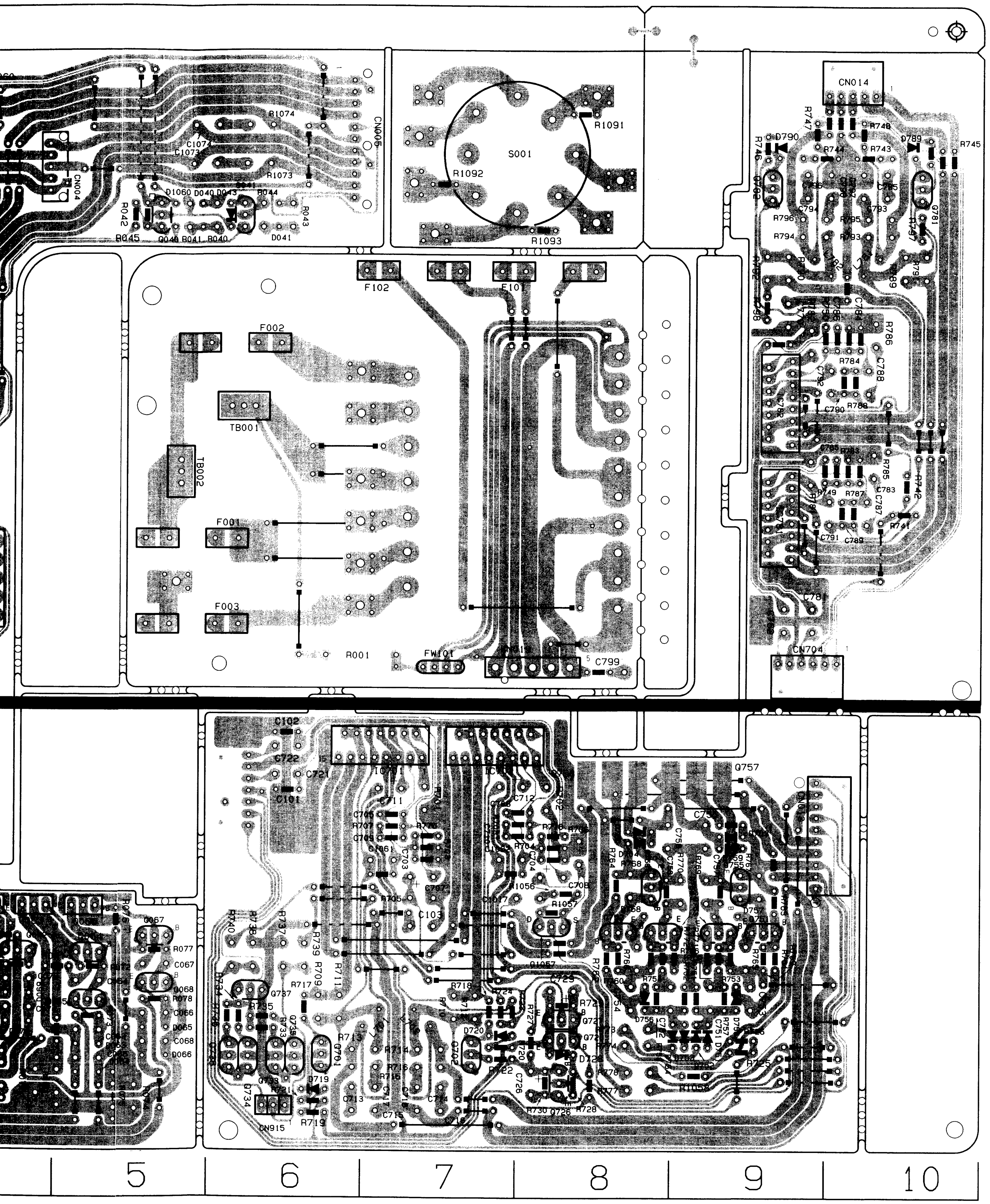
Printed Circuit Boards

■ Power Supply & Amp Board (ENH-302)


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
J091
C097
Q030
C030
C032
K002
C1018
R1059
R1060
D015
D016
CN004
CN006
R1074
C1074
C1073
R1073
D1060
D040
D043
D041
R042
R045
R044
R043
D041
S001
R1091
R1092
R1093
CN014
D790
D789
R745
R746
R747
R748
R744
R743
F102
F101
F002
TB001
TB002
F001
F003
R001
FW101
C799
CN704
C004
C014
C005
K008
D011
D013
Q901
C091
R007
R006
C022
R005
C020
R004
R003
D019
C017
C016
CN111
C033
C034
D022
R011
R010
C102
C722
C721
C101
IC701
IC702
Q757
R786
R784
C788
C790
R742
R741
C791
C789
C781
C074
Q076
R077
C067
Q068
R078
C066
C065
Q066
C103
R740
R736
R737
R739
R709
R717
R711
R734
R735
C733
Q738
Q734
R721
R719
Q719
CN915
R713
R714
R716
C715
C716
C714
R722
C726
R730
Q725
R728
R725
R1053
C723
R718
R1057
C708
R705
C705
C707
C711
C712
C706
C704
C703
C1061
C1017
C1056

Location List(EN

Symbol	X	Y
C001	2	E
C002	3	E
C003	3	E
C004	3	G
C004A	2	F
C005	3	F
C005A	2	G
C011	3	E
C012	4	E
C013	3	E
C014	4	G
C015	4	F
C016	2	D
C017	1	D
C018	2	D
C019	1	D
C020	1	E
C021	1	E
C022	1	E
C023	2	D
C024	2	D
C030	2	J
C031	2	J
C032	2	I
C033	4	D
C034	3	D
C035	3	D
C060	3	B
C061	3	B
C062	3	B
C063	5	B
C064	5	B
C065	5	A
C066	5	B
C067	5	B
C068	5	A
C069	4	B
C070	4	B
C071	4	B
C072	4	B
C073	4	B
C074	4	B
C091	1	G
C092	1	F
C093	1	I
C094	1	G
C095	1	H
C096	1	G
C097	1	I
C101	6	D
C1017	8	C
C1018	4	J
C102	6	D
C103	7	B
C1061	7	C
C1062	8	C
C1073	5	I
C1074	5	I
C703	7	C
C704	8	C
C705	7	C
C706	8	C
C707	7	C
C708	8	C
C709	7	C
C710	8	C
C711	7	D
C712	8	D
C713	7	A
C714	7	A
C715	6	A



Location List(ENH-302)

Symbol	X	Y
C001	2	E
C002	3	E
C003	3	E
C004	3	G
C004A	2	F
C005	3	F
C005A	2	G
C011	3	E
C012	4	E
C013	3	E
C014	4	G
C015	4	F
C016	2	D
C017	1	D
C018	2	D
C019	1	D
C020	1	E
C021	1	E
C022	1	E
C023	2	D
C024	2	D
C030	2	J
C031	2	J
C032	2	I
C033	4	D
C034	3	D
C035	3	D
C060	3	B
C061	3	B
C062	3	B
C063	5	B
C064	5	B
C065	5	A
C066	5	B
C067	5	B
C068	5	A
C069	4	B
C070	4	B
C071	4	B
C072	4	B
C073	4	B
C074	4	B
C091	1	G
C092	1	F
C093	1	I
C094	1	G
C095	1	H
C096	1	G
C097	1	I
C101	6	D
C1017	8	C
C1018	4	J
C102	6	D
C103	7	B
C1061	7	C
C1062	8	C
C1073	5	I
C1074	5	I
C703	7	C
C704	8	C
C705	7	C
C706	8	C
C707	7	C
C708	8	C
C709	7	C
C710	8	C
C711	7	D
C712	8	D
C713	7	A
C714	7	A
C715	6	A
C716	7	A
C717	7	A
C718	7	A
C721	6	D
C722	6	D
C726	8	A
C729	8	B
C751	9	B
C752	9	B
C753	9	B
C754	8	B
C755	9	C
C756	8	C
C757	9	C
C758	8	C
C770	9	H
C781	9	E
C782	9	E
C783	10	F
C784	10	G
C785	10	G
C786	10	H
C787	10	F
C788	10	G
C789	10	F
C790	10	G
C791	10	F
C792	10	G
C793	10	I
C794	10	I
C795	10	I
C796	9	I
C797	10	I
C798	10	I
C799	8	E
CH001	7	I
CH002	3	I
CH003	5	I
CH004	7	J
CN002	3	I
CN003	3	H
CN004	4	I
CN005	6	I
CN005B	6	I
CN006	2	H
CN007	2	E
CN009	4	F
CN012	2	B
CN013	9	C
CN014	10	J
CN019	7	E
CN111	4	D
CN505	1	F
CN703	6	D
CN704	9	E
CN915	6	A
D001	2	E
D002	2	E
D003	2	E
D004	3	E
D011	3	E
D012	3	E
D013	3	E
D014	4	E
D015	4	I
D016	4	I
D017	2	D
D018	2	D
D019	2	D
D020	1	E
D021	2	D
D022	3	C
D023	3	D
D024	1	D
D025	1	D
D027	2	D
D030	3	J
D040	5	I
D041	6	I
D043	6	I
D060	3	B
D061	3	B
D062	3	B
D063	5	A
D064	5	A
D065	5	B
D066	5	A
D067	4	B
D068	4	B
D069	4	B
D070	4	B
D1060	5	I
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D790	9	I
F001	5	F
F002	6	H
F003	5	E
F101	7	H
F102	7	H
FW101	7	E
FW401	6	D
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IC702	8	D
IC781	9	F
IC782	9	G
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K001	2	H
K002	2	I
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K004	2	I
K005	2	I
K006	2	H
K007	2	G
K008	2	F
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L781	10	H
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Q004	2	D
Q005	2	D
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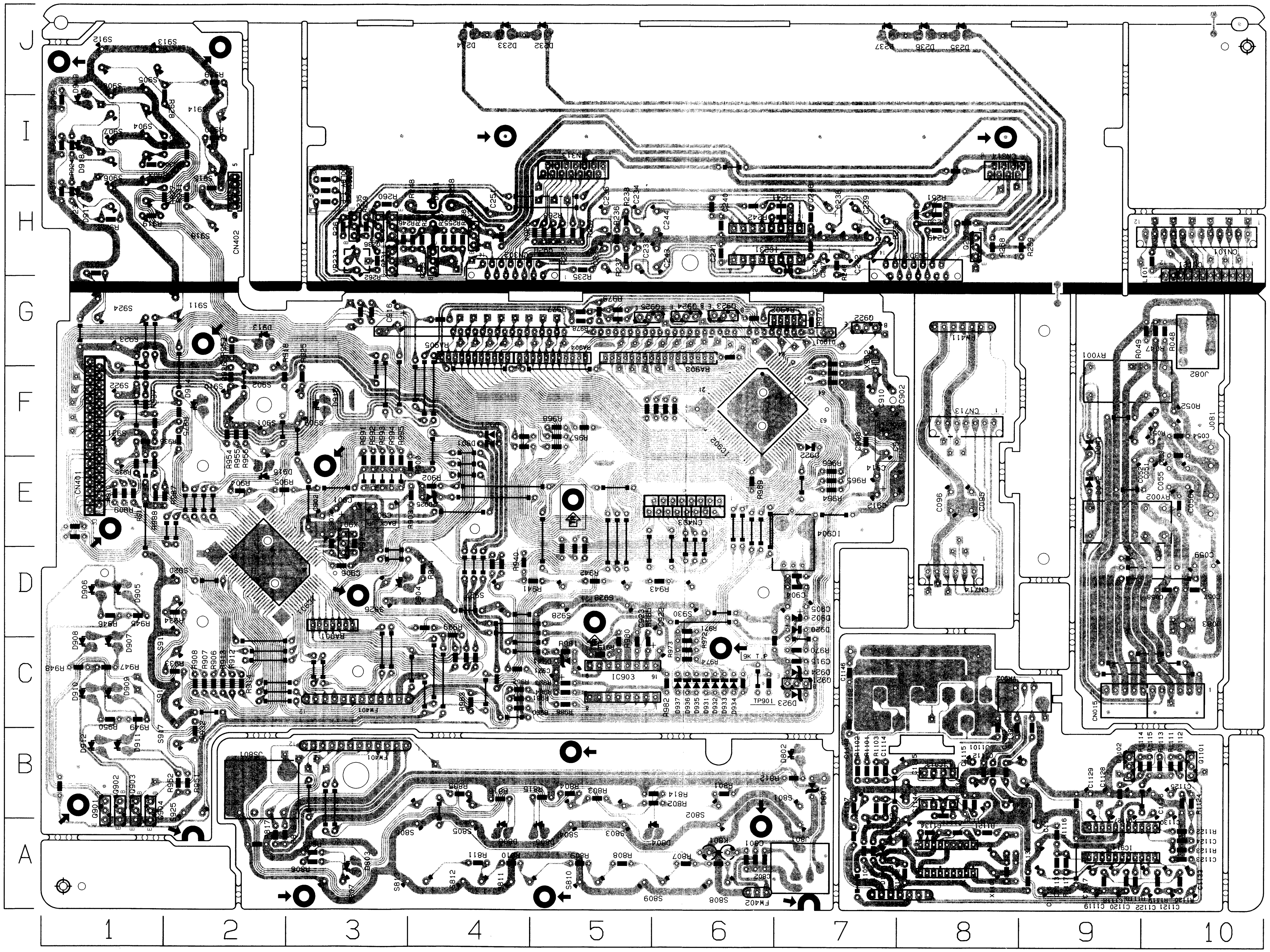
■ Front & Control Board (ENB248)



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C055	10	E	CH001	10	H
C056	10	E	CH001	10	C
C057	10	D	CH001	7	G
C058	10	D	CH002	8	C
C059	10	D	CH002	7	G
C095	8	E	CH002	10	H
C096	8	E	CH003	10	H
C1112	8	B	CH003	7	G
C1113	9	A	CH003	9	B
C1114	7	B	CH004	10	B
C1115	8	B	CH004	7	G
C1116	9	A	CH004	10	H
C1117	9	A	CH005	6	G
C1118	9	A	CH005	10	H
C1119	9	A	CH005	9	C
C1120	9	A	CH006	6	G
C1121	10	A	CH006	10	H
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C1123	10	A	CH007	10	H
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C1125	10	B	CH008	10	H
C1126	10	B	CH009	10	H
C1127	9	B	CH009	6	G
C1128	9	B	CH010	10	H
C1129	9	B	CH010	6	F
C1130	10	B	CH011	6	G
C1131	9	A	CH011	10	H
C1132	9	B	CH012	6	F
C1133	10	A	CH012	9	H
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C1136	8	A	CH014	4	J
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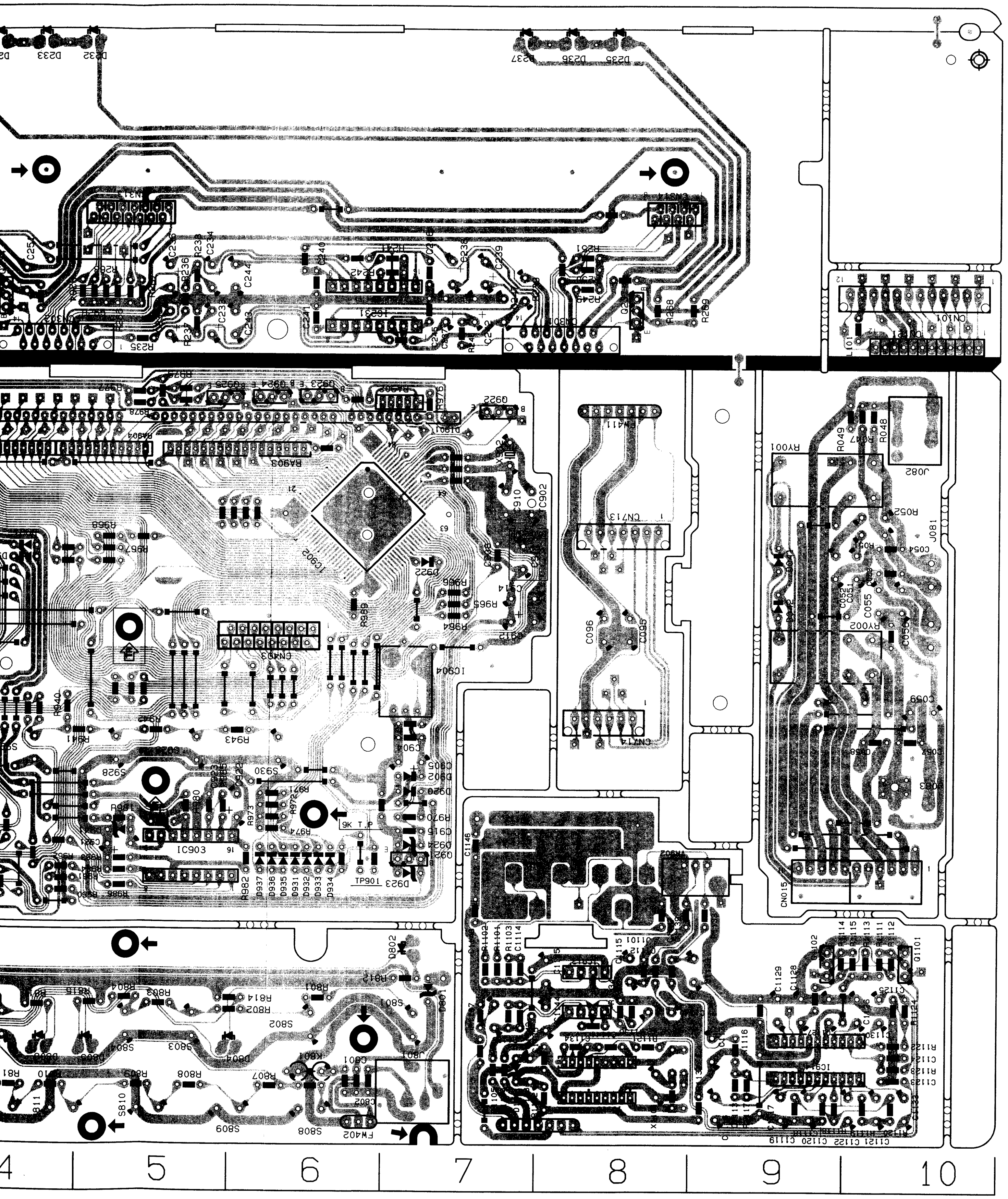

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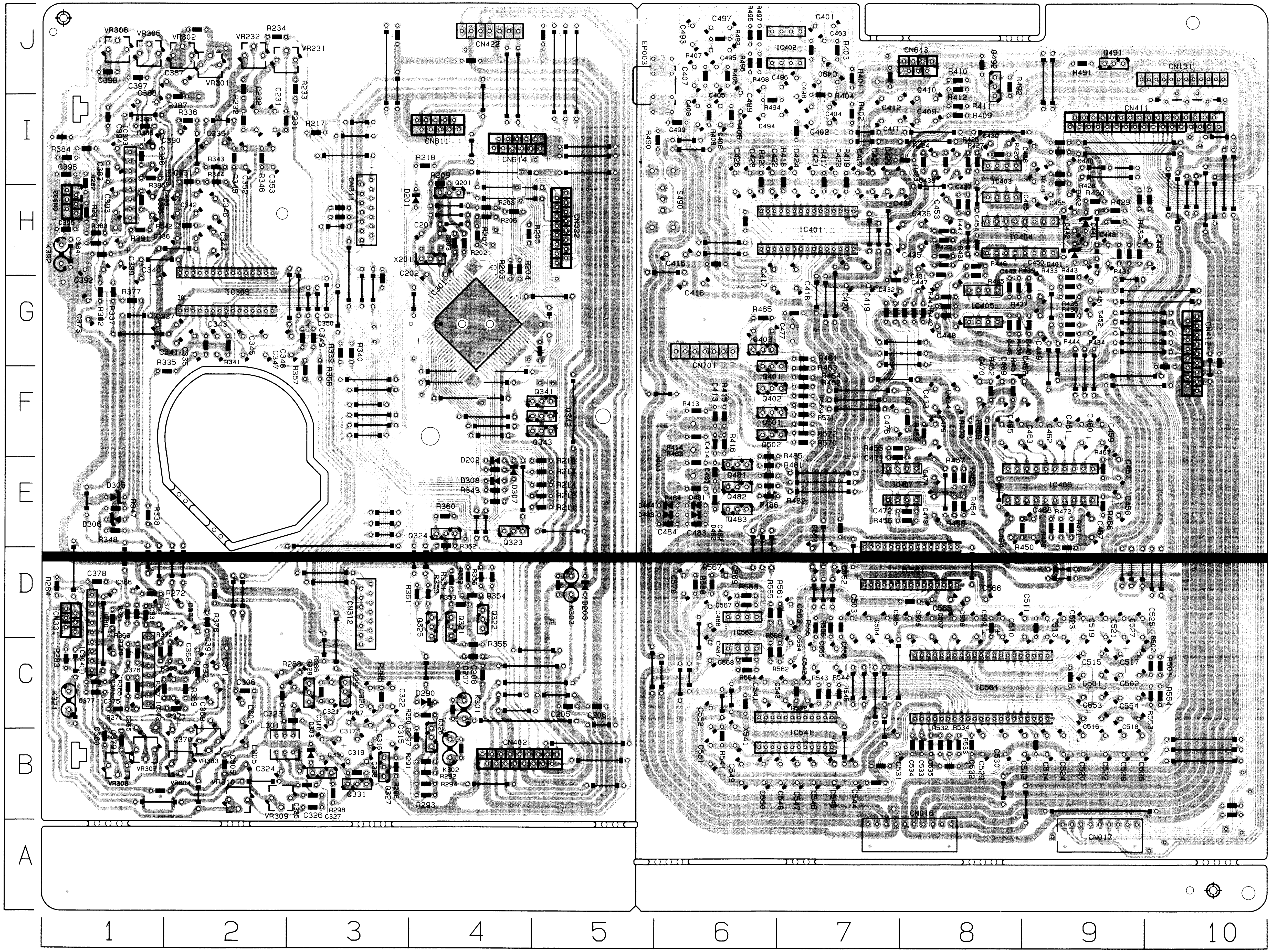
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EP003

Location List(EN

Symbol	X	Y
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C202	4	H
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C207	4	C
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C232	2	I
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C328	3	B
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C332	2	C
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C337	2	G
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C342	2	H
C343	2	G
C344	2	H
C345	2	G
C346	2	H
C347	2	G
C348	3	G
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C350	3	G
C351	2	I
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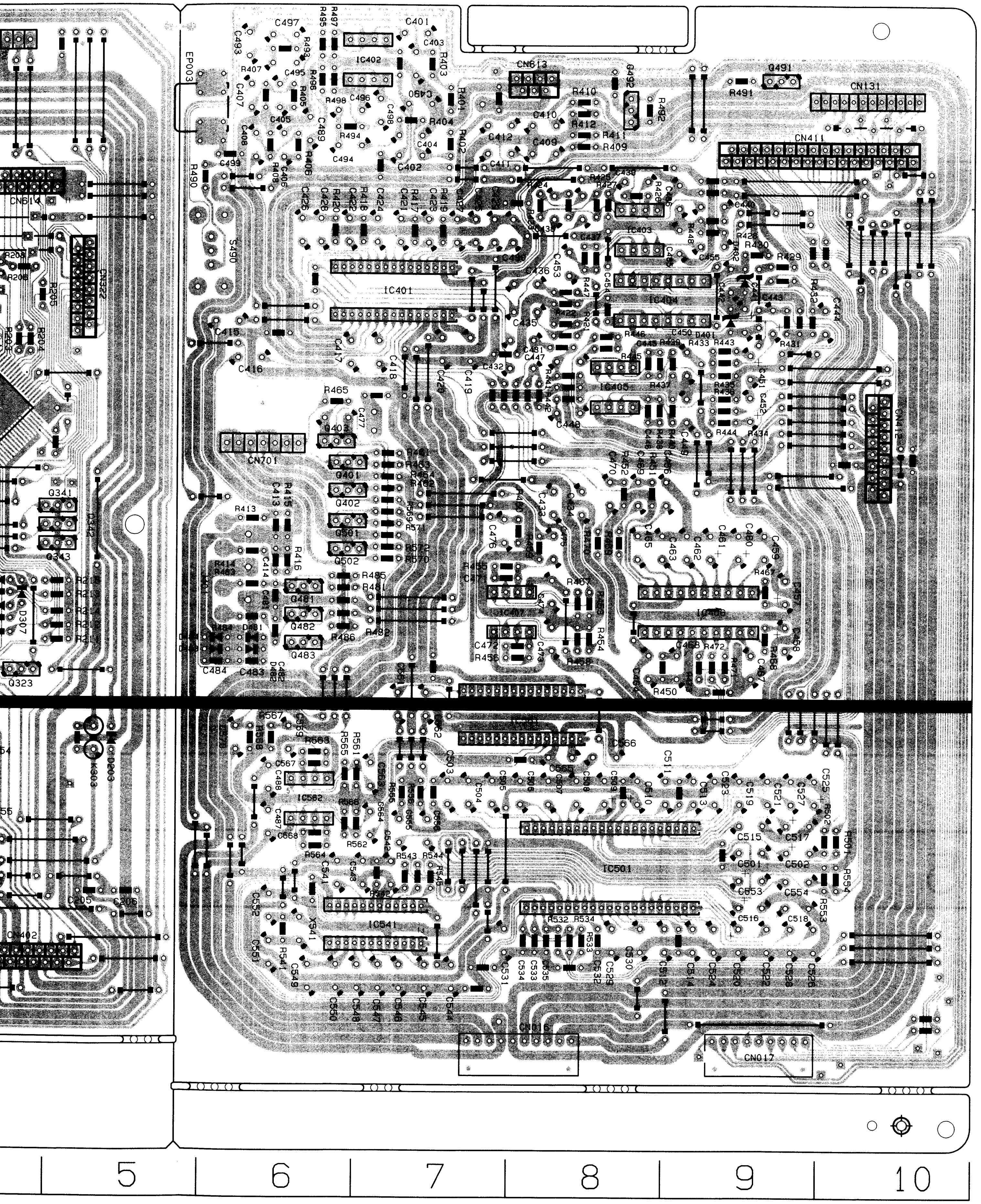

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C352	2	I
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IC402	7	J
IC403	8	H
IC404	9	H
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IC406	9	E
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IC501	8	C
IC541	6	C
IC561	8	D
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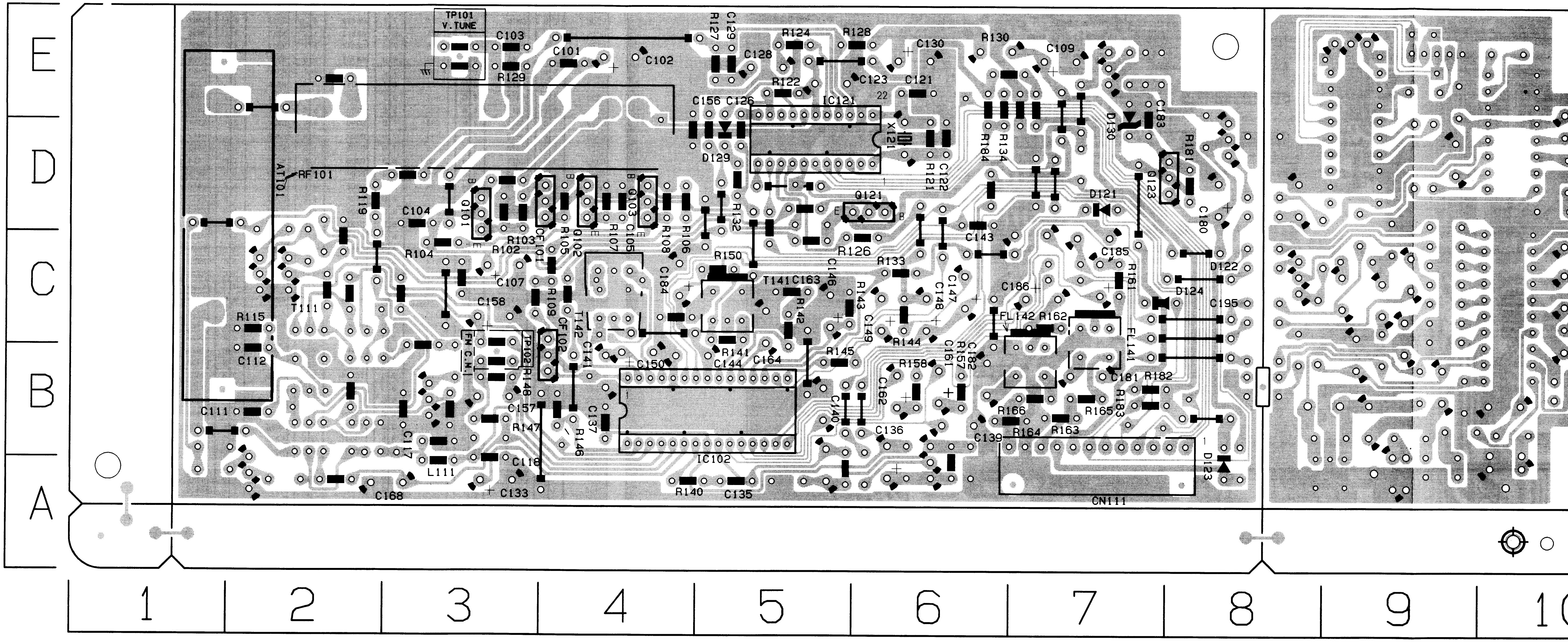
■ Tuner Board (ENA178)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TP102
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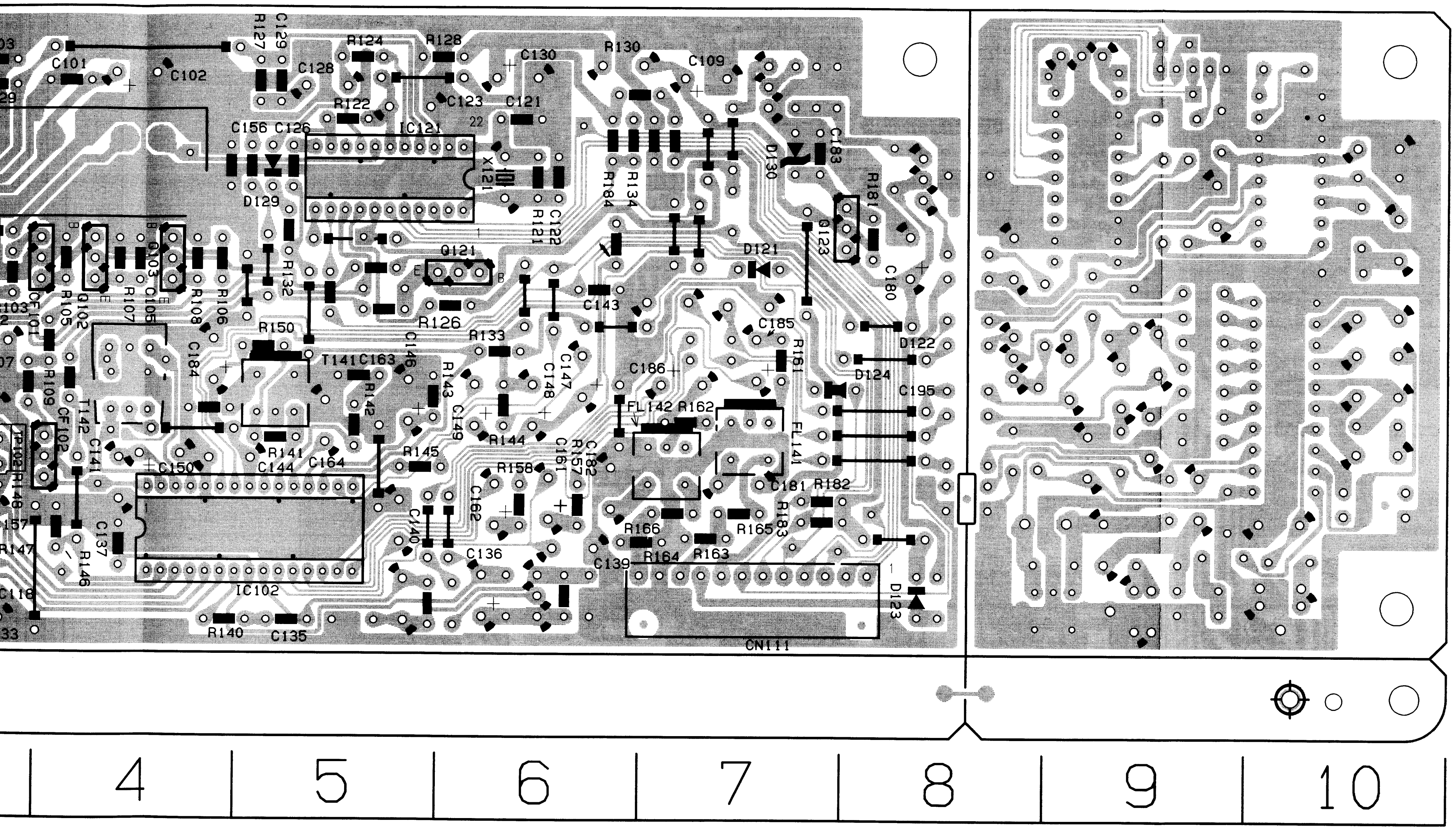
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X121
D129
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R181
R164
R134
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C122
Q123
Q121
D121
C180
CF101
R105
Q102
R107
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Location List (ENA-178)

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C112	1	B
C113	1	A
C117	3	B
C118	3	A
C121	5	E
C122	6	D
C123	5	E
C126	4	E
C128	5	E
C129	4	E
C130	5	E
C131	9	C
C132	9	B
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C158	3	C
C159	7	C
C160	6	C
C161	6	B
C162	5	B
C163	5	C
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C195	8	C
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C199	10	E
CF101	3	D
CF102	3	C
CN111	6	B
CN112	9	E
D121	7	D
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D132	9	D
D133	7	E
FL141	7	C
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IC102	4	B
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IC121	5	D
IC191	8	E
IC192	9	D
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RF101	2	E
T111	2	B
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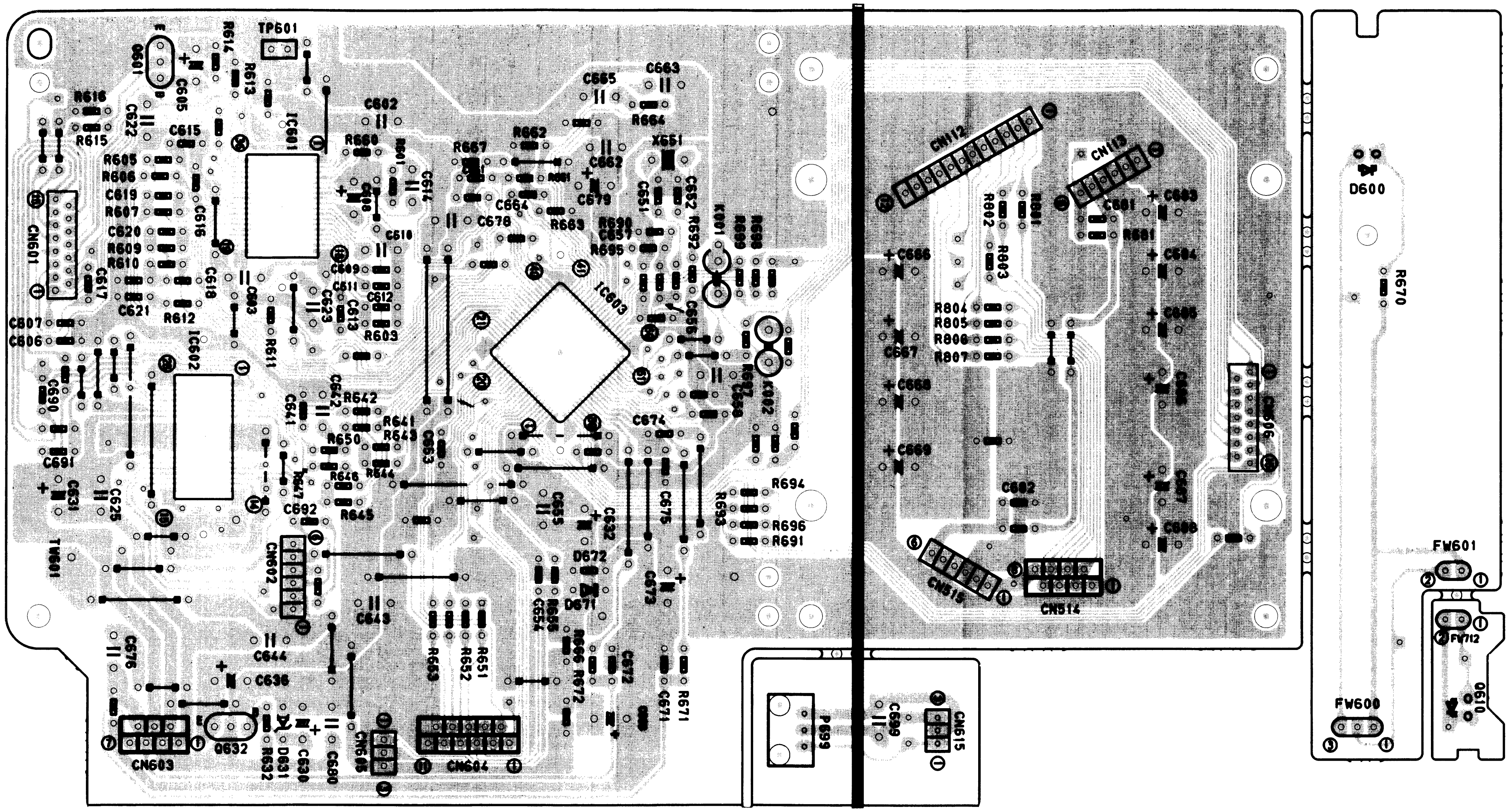
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R802
R801
R803
C681
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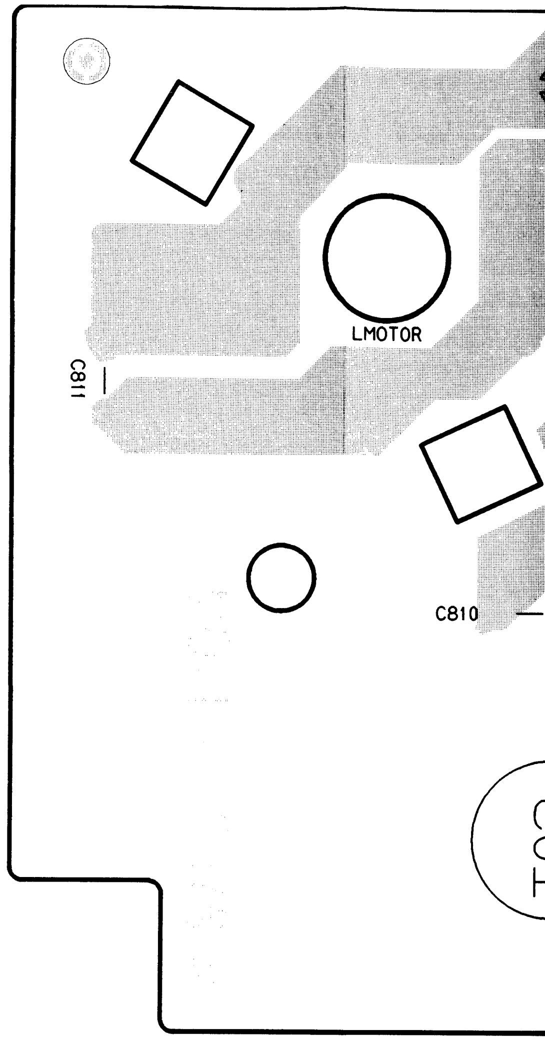
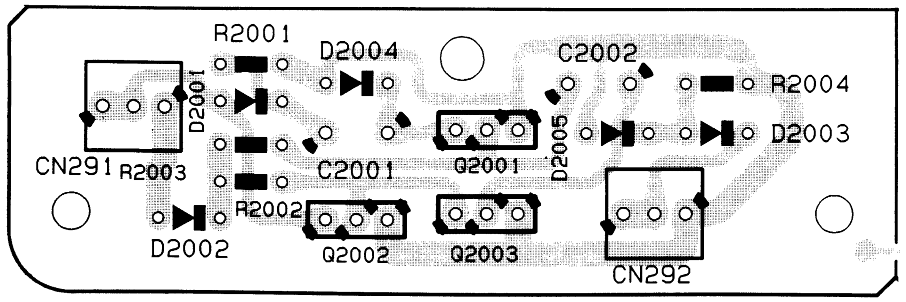
C683
C684
C685
C686
C687
C688
C689
R804
R805
R806
R807
C682
CN606
C687
C688
CN515
CN514
D600
R670
FW601
FW600
FW712
Q610

■ Changer Mechanism Board (VMW13


LMOTOR
C811
C810

■ IC301 μcom Modify Board (END-107)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D2001
D2005
D2003
CN291
R2003
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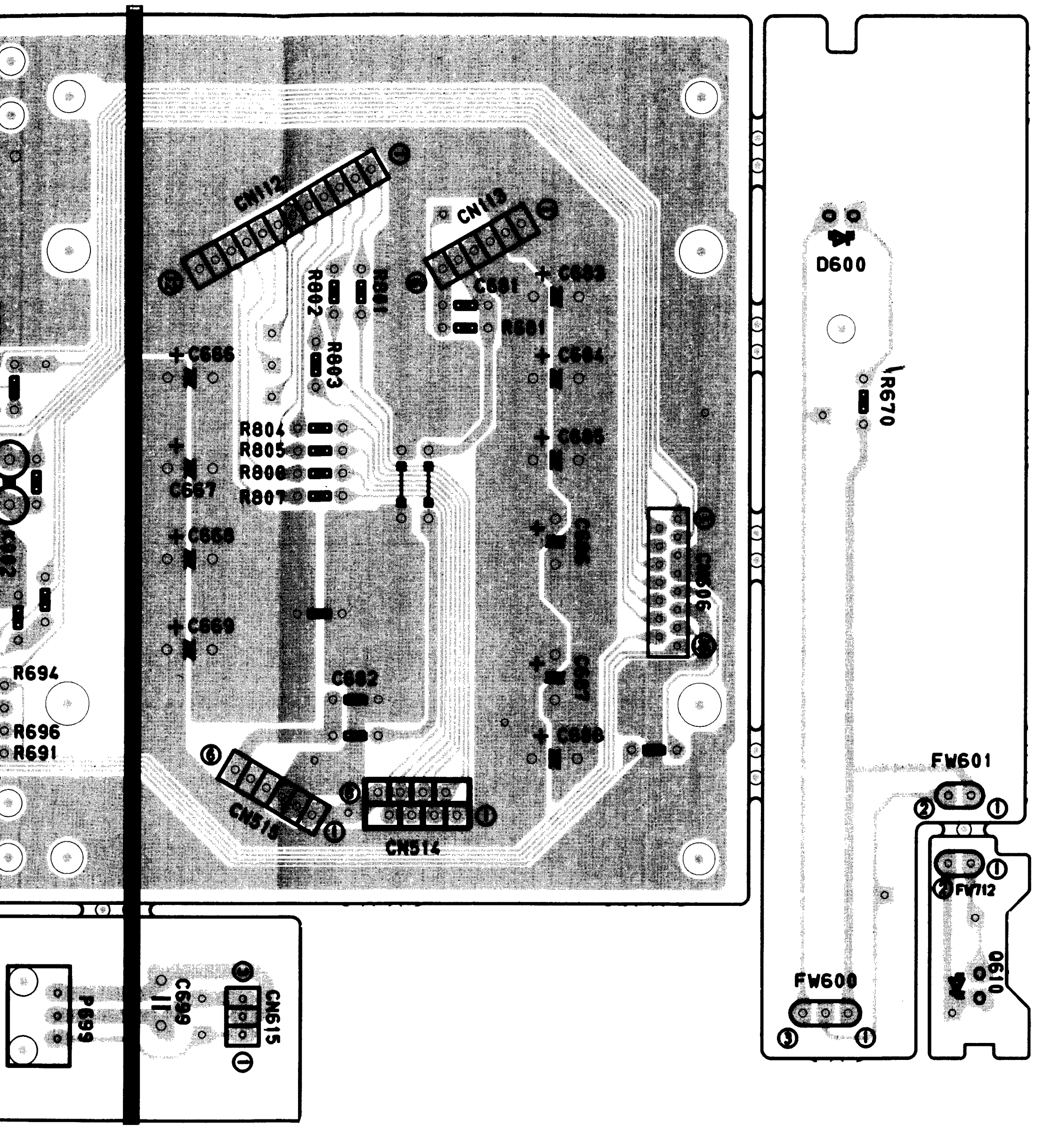
Q2001
R2002
D2002
Q2002
Q2003
CN292


CN112
CN113
C681
C683
R801
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R804
R805
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R807
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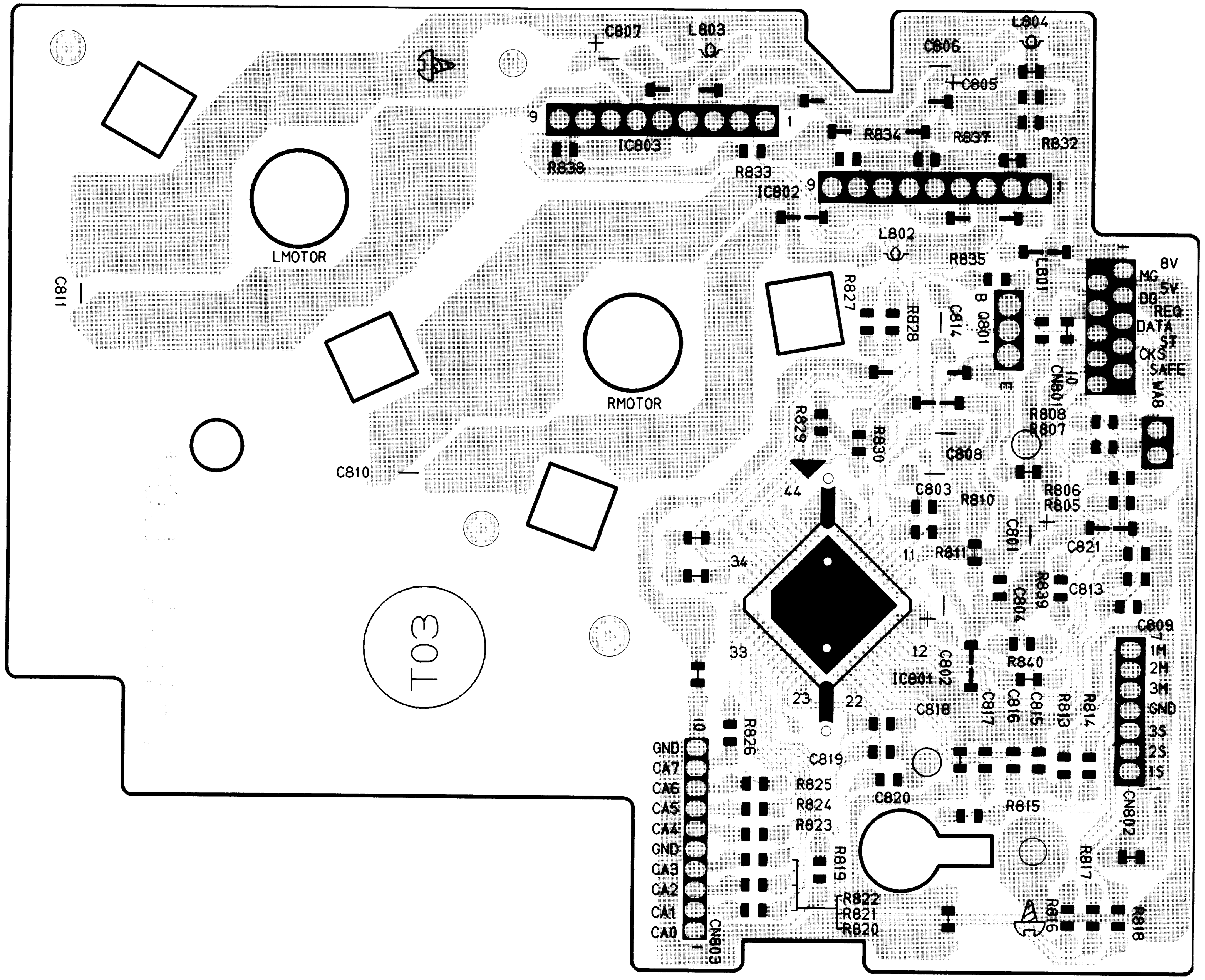
C688
C689
C686
CN696
C687
C682
C688
R694
R696
R691
CN516
CN514
D600
R670
FW601
FW600
FW712
D610
C699
P699
CN615

■ Changer Mechanism Board (VMW1377)


C807
L803
L804
C806
C805
IC803
R838
R833
R834
R837
R832
IC802
L802
R835
L801
C811
LMOTOR
RMOTOR
R827
R828
C814
Q801
B
E
CN801
8V
MG
5V
DG
REQ
DATA
ST
CKS
SAFE
WA8
R829
R830
C808
R808
R807
C810
C803
R810
R806
R805
C801
C821
R811
C804
R839
C813
C809
T03
IC801
C802
R840
C817
C816
C815
R813
R814
1M
2M
3M
GND
3S
2S
1S
CN802
C818
C819
R826
GND
CA7
CA6
CA5
CA4
GND
CA3
CA2
CA1
CA0
CN803
R825
R824
R823
C820
R815
R819
R822
R821
R820
R817
R816
R818
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PARTS LIST

* All printed circuit boards and its assemblies are not available as service parts.

The Marks for Designated Areas

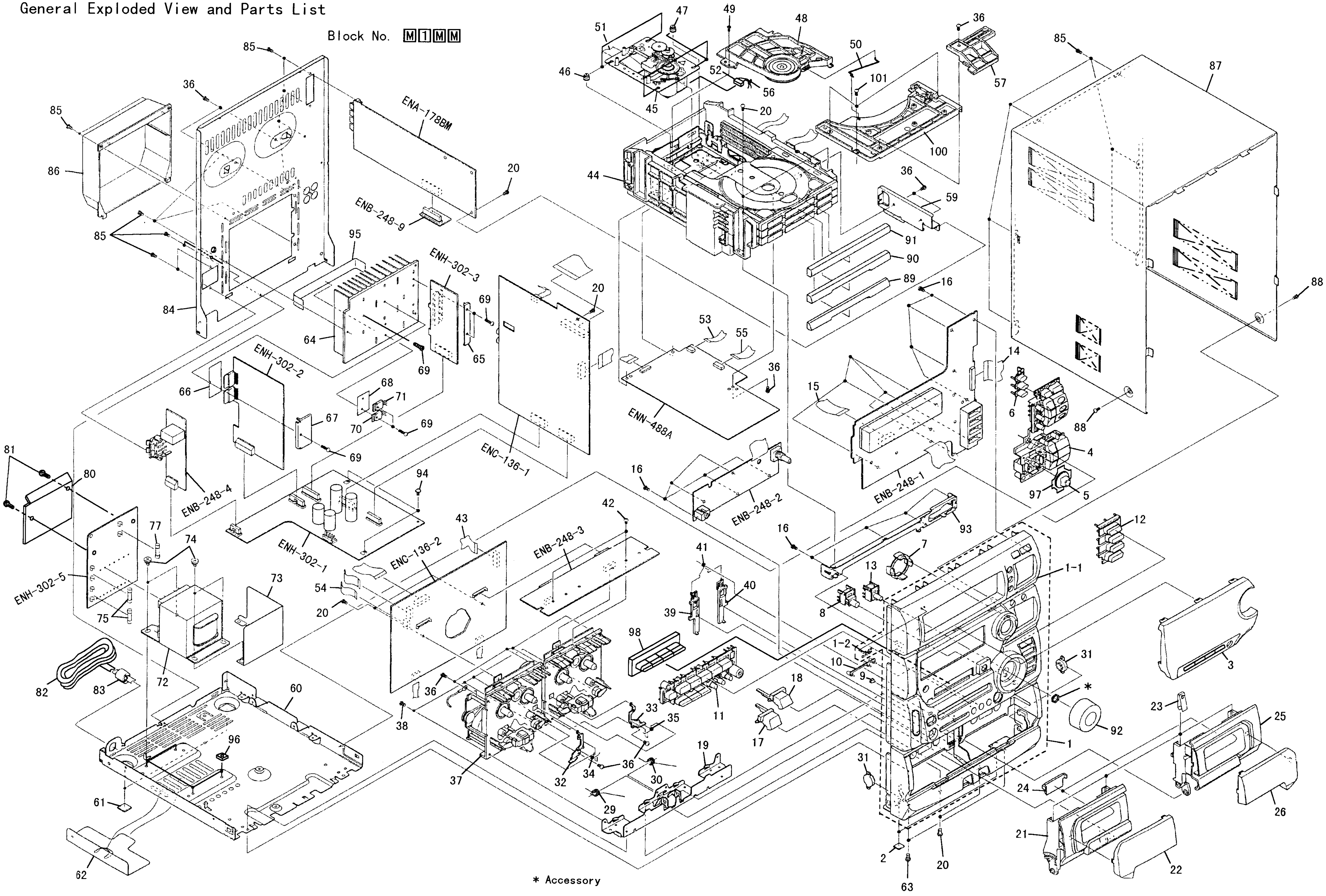
EF · · · Continental Europe
EN · · · Scandinavia
G · · · Germany

- Contents -

General Exploded View and Parts List ---------------------------------- 2-3
Changer Mechanism Ass'y and Parts List---------------------------------- 2-5
■ Grease Point -- 2-5
CD Mechanism Ass'y and Parts List ------------------------------------ 2-7
■ Grease Point -- 2-7
Chassette Mechanism Ass'y and Parts List ------------------------------ 2-8
■ Grease Point -- 2-8
Electrical Parts List -- 2-10
(ENH-302M) -- 2-10
(ENB-248M) -- 2-12
(ENC-136M) -- 2-14
(ENN-488M) -- 2-17
(ENA-178BM) --- 2-18
(Changer Control P.C.Board) -- 2-19
Accessories List -- 2-20
Packing Materials and Part Numbers ------------------------------------ 2-21

General Exploded View and Parts List

Block No. M1MM


85
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85
84
ENA-178BM
ENB-248-9
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ENH-302-3
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ENH-302-2
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ENB-248-4
ENH-302-1
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ENH-302-5
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ENC-136-1
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ENC-136-2
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ENB-248-3
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ENN-488A
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ENB-248-2
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ENB-248-1
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* Accessory

■ Parts List

Block No. M1MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	EFP-CAD651TRE(S	FRONT PANEL ASSY	1		
	1-1	E103259-013SM	FRONT PANEL	1		
	1-2	E406971-221	JVC MARK	1		
	2	E75896-001	SPACER	2		
	3	E209142-019SM	WINDOW SCREEN	1		
	4	E209144-001SM	PUSH BUTTON	1	SOUND	
	5	E310199-001SM	SELECT KNOB	1		
	6	E310192-001SM	PUSH BUTTON	1	DISC	
	7	E310189-003SM	INDICATOR LENS	1	JOY	
	8	E310194-001SM	PUSH BUTTON	1	SURR. ON/OFF	
	9	E409555-001SM	INDICATOR LENS	1	STANDBY	
	10	E310191-001SM	INDICATOR LENS	1	REC. A/B	
	11	E209146-002SM	PUSH BUTTON ASSY	1		
	12	E209149-001SM	PUSH BUTTON	1	SOURCE	
	13	E310190-001SM	PUSH BUTTON	1	DEMO	
	14	VWF1225-20TTB	FLAT WIRE	1		
	15	VWF1216-13TTB	FLAT WIRE ASSY	1		
	16	SDSF2608Z	SCREW	20		
	17	E310196-001SM	EJECT BUTTON	1		
	18	E310197-001SM	EJECT BUTTON	1		
	19	E208588-002SM	HOLDER BRACKET	1		
	20	SBSG3008Z	TAPPING SCREW	8		
	21	E103261-003	CASSETTE HOLDER	1		
	22	E209151-001SM	CASSETTE LENS	1		
	23	E406713-001	CASSETE SPRING	4		
	24	E310204-001SM	INDICATOR LENS	2		
	25	E103263-003SM	CASSETTE HOLDER	1		
	26	E209152-001SM	CASSETTE LENS	1		
	29	LE40300-001A	HOLDER SPRING	1		
	30	LE40286-001A	HOLDER SPRING	1		
	31	VYH7779-00D	DAMPER	2		
	32	E309477-222	EJECT STOPPER	1		
	33	E309478-222	EJECT STOPPER	1		
	34	E407801-002	SPRING	1		
	35	E407802-002	SPRING	1		
	36	SBSF3008Z	TAPPING SCREW	12		
	37	-------------	CASSETTE MECHA ASSY	1	See page 2-8	
	38	SBST3006Z	TAPPING SCREW	4		
	39	E309479-001SS	EJECT LEVER	1		
	40	E309480-001SS	EJECT LEVER	1		
	41	E408742-001SS	SPRING	1		
	42	SBST2604Z	SCREW	2		
	43	VWF1217-10TTB	FLAT WIRE	1		
	44	-------------	CHANGER MECHANISM ASSY	1	See page 2-5	
	45	-------------	CD MECHANISM ASS'Y	1	See page 2-7	
	46	FMYH4003-001	INSULATOR	2		
	47	FMYH4003-002	INSULATOR	2		
	48	VKS3703-00FMM	CLAMPER	1		
	49	SPST2606Z	TAPPING SCREW	1		
	50	VKW5187-001	ROD	1		
	51	QUQ110-1509AJ	FLAT WIRE	1		
	52	VDM1001-M001A	SOCKET WIRE ASSY	1		
	53	VWF1207-07TTB	FLAT WIRE	1		
	54	VWF1210-27TTB	FLAT WIRE ASSY	1		

■ Parts List

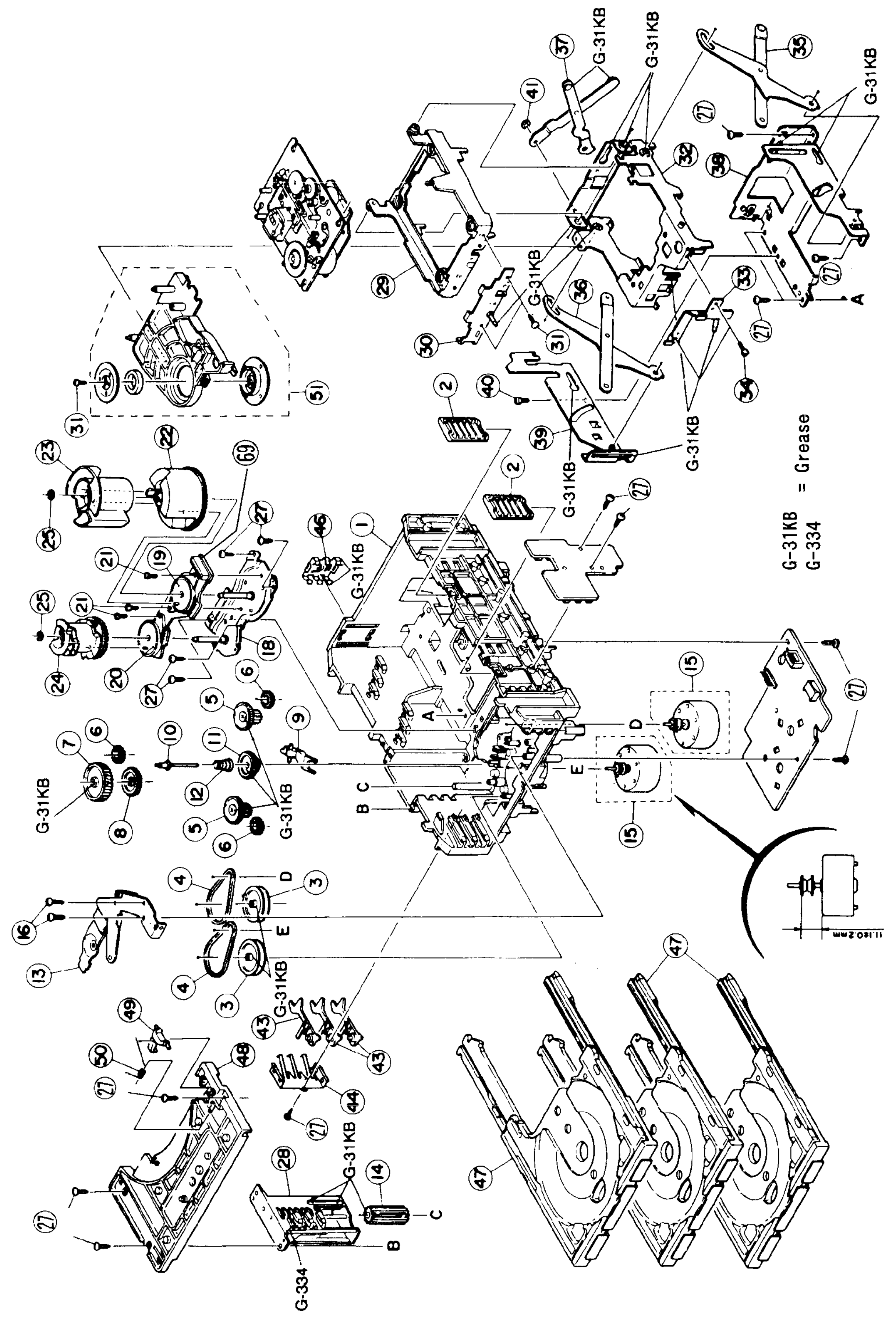
Block No. M1MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	55	VWF1211-22TTB	FLAT WIRE ASSY	1		
	56	VYSA1R2-033	SPACER	1		
	57	E309662-001	DISK STOPPER	1		
	59	E310198-001SM	P.W.BOARD BRACKET	1		
	60	E102616-230SM	CHASSIS BASE	1		
	61	E75896-006	FELT SPACER	2		
	62	E310075-001	PROTECTOR COVER	1		
	63	SBST3008Z	TAPPING SCREW	2		
	64	E309789-001SM	HEAT SINK	1		
	65	E406969-002SM	LEAF SPRING	1		
	66	FMPK4003-001	MICA SHEET	1		
	67	FMKL4007-001	HEAT SINK BRACKET	1		
	68	FMPK4004-001	MICA SHEET	1		
	69	SBSG3014CC	SCREW	5		
	70	2SC4467/OPY/-F1	TRANSISTOR	2	Q757	
	71	2SA1694/OPY/-F1	TRANSISTOR	2	Q758	
	72	QQT0156-002	POWER TRANSFORMER	1		
	73	E409015-001SM	SHIELD PLATE	1		
	74	E65389-002	SPECIAL SCREW	4		EF EN
		E65389-005	ASSY SCREW	4		G
⚠	75	QMF51E2-3R15J1	FUSE	2	F101, F102 (T3.15A/250V)	
⚠	77	QMF51E2-1R25	FUSE	1	F001 (T1.25A/250V)	
	80	LE40252-201A	PROTECT SHEET	1		
	81	E310243-002	PLASTIC RIVET	2		
⚠	82	QMP39E0-200	POWER CORD	1		
⚠	83	QHS3876-162	CORD STOPPER	1		
	84	E103265-012SM	REAR PANEL	1		
	85	E73273-003	SPECIAL SCREW	18		
	86	E207356-001SM	REAR COVER	1		
	87	E103267-003SM	METAL COVER	1		
	88	SDSG3006M	TAPPING SCREW	2		
	89	E209153-001SM	CD FITTING	1		
	90	E209155-001SM	CD FITTING	1		
	91	E209157-001SM	CD FITTING	1		
	92	E310080-227SM	M.VOL.KNOB	1		
	93	E310195-001SM	STAY BRACKET	1		
	94	GBSG3008CC	TAPPING SCREW	3		
	95	EX0150010H09S11	FELT SPACER	1		
	96	E406309-002	SPACER	4		G
	97	LE40283-001A	PROTECT SHEET	1		
	98	E310205-001SM	PUSH BUTTON	1		
	100	VKS2250-003	TOP BRACKET	1		
	101	SBSF2608Z	SCREW	3		

CD Changer Mechanism Ass'y and Parts List

■ Grease Point

Block No. M2MM


G-31KB
G-334
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G-31KB
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■ Parts List (Changer Mechanism Ass'y)

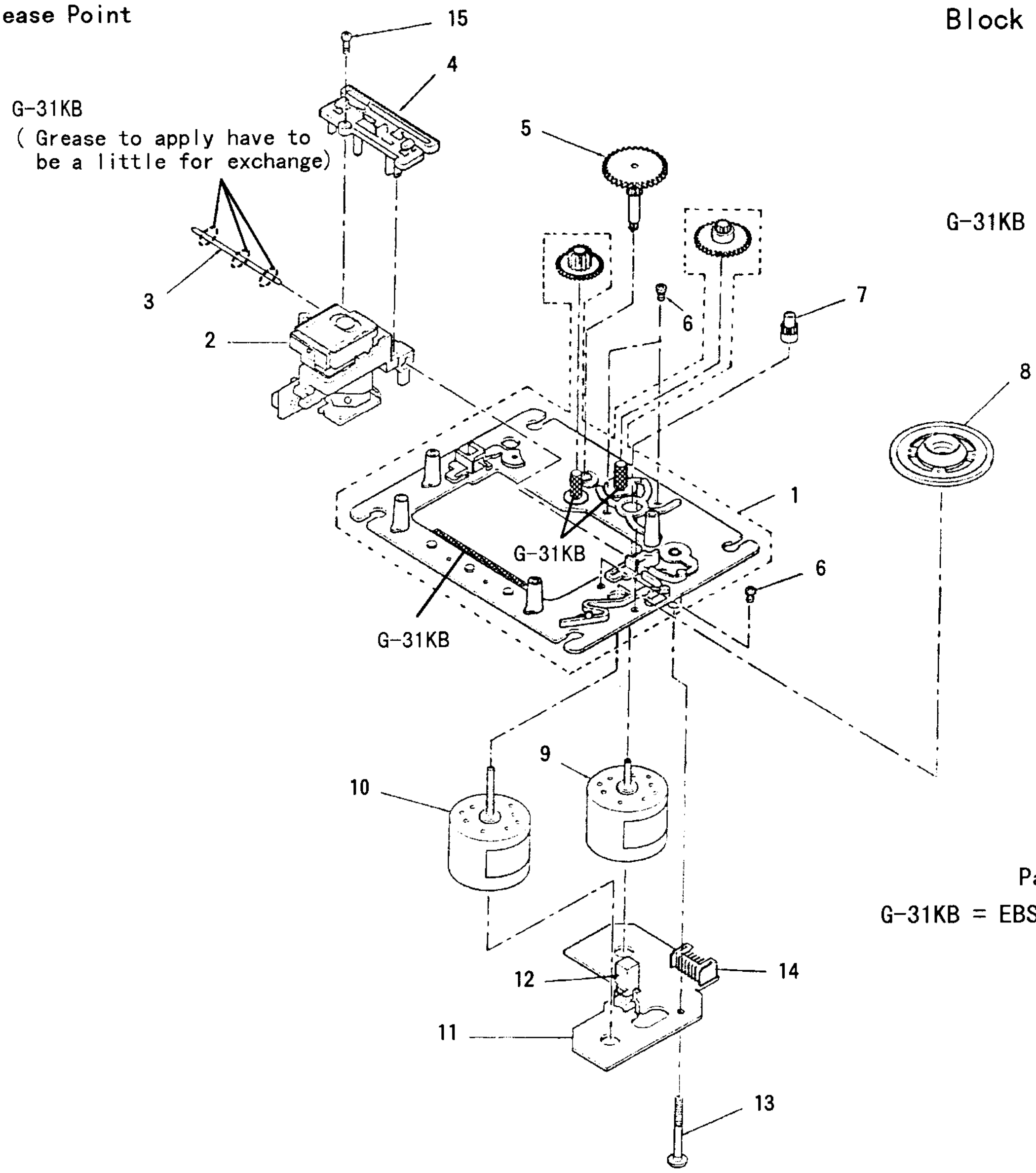
Block No. M2MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	VKS1144-003	CHASSIS BASE	1		
	2	VKS3698-003	TRAY GUIDE	2		
	3	VKS5532-003	PULLEY GEAR	2		
	4	VKB3000-164	DRIVE BELT	2		
	5	VKS5505-003	GEAR B	2		
	6	VKS5506-002	GEAR C	3		
	7	VKS5507-002	CROSS GEAR U	1		
	8	VKS5508-002	CROSS GEAR L	1		
	9	VKS5510-003	SELECT LEVER	1		
	10	VKH5769-001	GEAR STUD	1		
	11	VKS5511-002	SELECT GEAR	1		
	12	VKW5155-003	COMPRESS SPRING	1		
	13	VKM3846-002	GEAR BRACKET	1		
	14	VKS5509-002MM	CYLINDER GEAR	1		
	15	MSN5D257A-SA2	DC MOTOR ASSY	2		
	16	DPSP2616Z	SCREW	2		
	18	VKM3825-00A	CAM GEAR BASE ASSY	1		
	19	VKZ3172-00A	CAM SWITCH ASSY	1		
	20	VKZ3173-00A	CAM SWITCH ASSY	1		
	21	SPST2606Z	TAPPING SCREW	3		
	22	VKS2263-002MM	CAM R1	1		
	23	VKS2264-002MM	CAM R2	1		
	24	VKS2265-002MM	CAM GEAR L	1		
	25	WDL316050	SLIT WASHER	2		
	27	SBSF2608Z	TAPPING SCREW	15		
	28	VKS3702-00FMM	DRIVE UNIT	1		
	29	VKS2247-004	MECHA. HOLDER A	1		
	30	VKL7767-00B	MECHA. BRACKET ASSY	1		
	31	SBSF2606Z	TAPPING SCREW	3		
	32	VKM3860-00A	MECHA. HOLDER ASSY	1		
	33	VKL7802-00C	MECHA. HOLDER ASSY	1		
	34	SDST2604Z	SCREW	2		
	35	VKL7810-00A	LIFTER	1		
	36	VKL7811-00A	LIFTER	1		
	37	VKL7812-00A	LIFTER	1		
	38	VKL2732-002	LIFTER BASE	1		
	39	VKM3823-001	LIFTER BRACKET	1		
	40	SDST2604Z	SCREW	1		
	41	WDL266035-2	SLIT WASHER	1		
	43	VKS5514-002MM	LOCK LEVER	3		
	44	VKY3133-002MM	RETURN SPRING	1		
	46	VKY3134-003	SPRING	1		
	47	VKS2252-00D	TRAY ASSY	3		
	48	VKS2250-003	TOP BRACKET	1		
	49	VKS5515-002	S.TRAY STOPPER	1		
	50	VKW5156-004	TORSION SPRING	1		
	51	VKS3703-00FMM	CLAMPER ASSY	1		
	69	VMC0325-010	CONNECTOR	1		

CD Mechanism Ass'y and Parts List

■ Grease Point

Block No. M3MM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G-31KB = Grease

Parts No.
G-31KB = EBS0006-013B

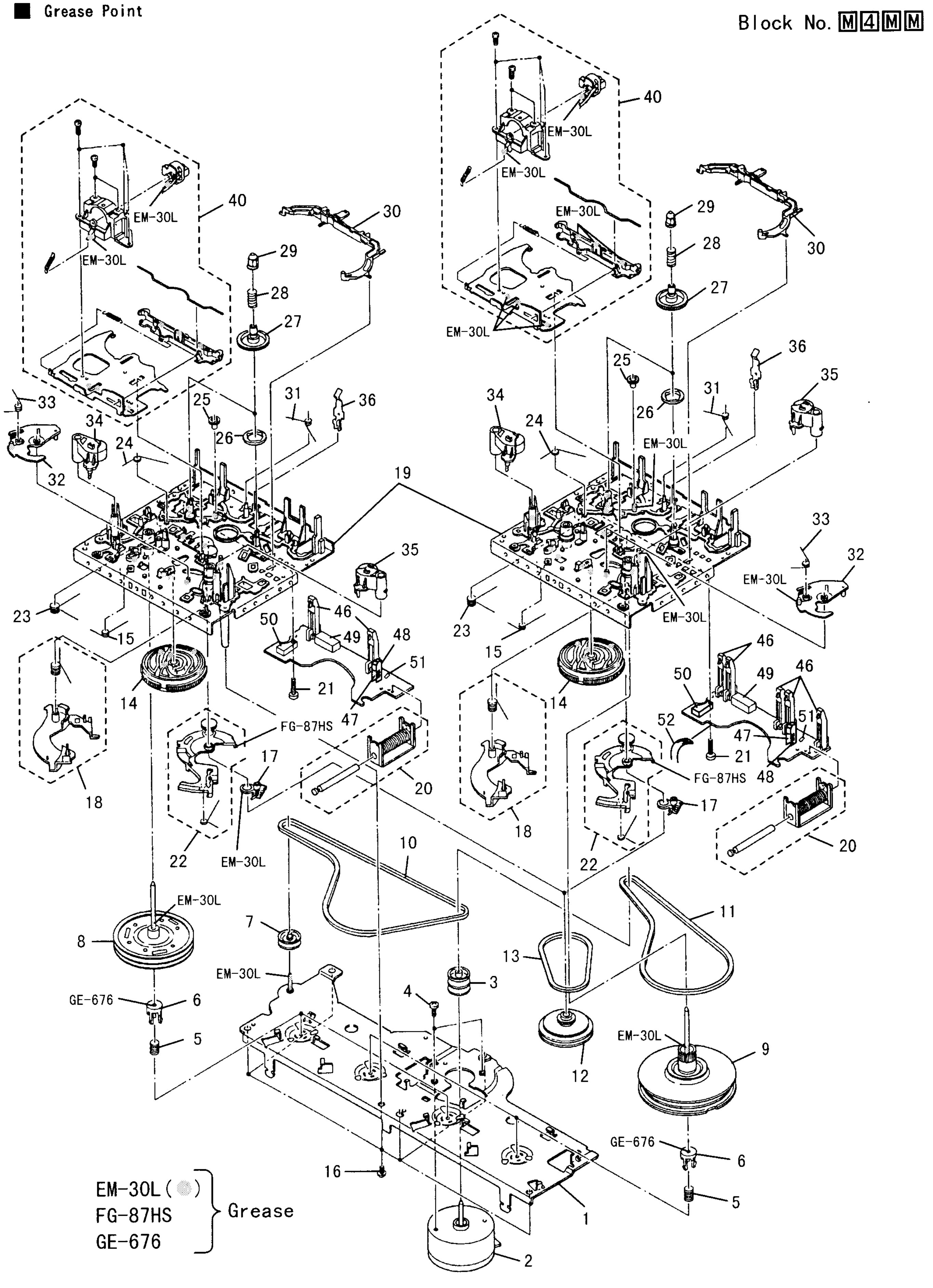
■ Parts List (CD Mechanism Ass'y)

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	E102501-221SS	MECHA. BASE ASSY	1	Made in Singapore	
		EPB-002PK	MECHA. BASE ASSY	1	Made in Malaysia	
	2	OPTIMA-150S	OPTICAL PICK UP	1		
	3	E406777-001	CD SHAFT	1		
	4	E307746-001	CD RACK	1		
	5	E307745-221SS	MECHA GEAR	1		
	6	SDSP2003N	SCREW	4		
	7	E406750-001	PINION GEAR	1	Made in Singapore	
	8	E75807-302	TURN TABLE	1	Made in Malaysia	
	9	MDN-4RA3ETA-1	FEED MOTOR	1		
		E406784-001	FEED MOTOR	1		
	10	E406783-001	SPINDLE MOTOR	1		
	11	EMW10190-001(S)	P.C. BOARD	1		
	12	ESB1100-005	LEAF SWITCH	1		
	13	E75832-001	SCREW	1		
	14	EMV5109-006B	CONNECT TERMINAL	1	6PIN	
	15	SDSF2006Z	SCREW	1	Made in Malaysia	

Cassette Mechanism Ass'y and Parts List

■ Grease Point

Block No. M4MM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FG-87HS
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GE-676
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EM-30L (●)
FG-87HS
GE-676
Grease

■ Parts List (Cassette Mechanism Ass'y)

Block No. M4MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	VKM3835-00A	FLYWHEEL BRACKET	1		
	2	MMI-6H2LWK	DC MOTOR	1		
	3	VKR4740-003	MOTOR PULLEY	1		
	4	SPSP2603Z	WOOD SCREW	2		
	5	VKW5177-002	SPRING	1		
	6	VKS5524-001	THRUST GUIDE	1		
	7	VKR4741-002	IDLER PULLEY	1		
	8	VKF3202-00A	F.WHEEL (L) ASY	2		
	9	VKF3200-00A	F.WHEEL (R) ASY	2		
	10	VKB3000-161	CAPSTAN BELT	1		
	11	VKB3000-162	CAPSTAN BELT	1		
	12	VKS5523-00C	MAIN PULLY ASSY	2		
	13	VKB3000-167	REEL BELT	2		
	14	VKS1150-001	CONTROL CAM	2		
	15	VKW5170-002	SPRING	2		
	16	SBSF2608Z	TAPPING SCREW	6		
	17	VKS3719-001	RING	2		
	18	VKS5525-00B	TRIGGER ARM ASSY	2		
	19	VKS1151-00A	CHASSIS BASE ASSY	2		
	20	VGP2401-00A	SOLENOID ASSY	2		
	21	SDST2612Z	SCREW	2		
	22	VKS3714-00B	F.F/REW.ARM	2		
	23	VKW5173-001	SPRING	2		
	24	VKW5202-002	SPRING	2		
	25	VKS5519-002	IDLER GEAR	2		
	26	VKZ4690-002	MAGNET	2		
	27	VKS3707-002	REEL GEAR	2		
	28	VKW5162-002	SPRING	4		
	29	VKS3708-002	REEL CAP	4		
	30	VKS2261-002	REEL STOPPER	2		
	31	VKW5178-001	BRAKE SPRING	2		
	32	VKS2255-001	DIRECTION LEVER	2		
	33	VKW5163-001	SPRING	2		
	34	VKP4232-00B	PINCH ROLLER	2		
	35	VKP4231-00B	PINCH ROLLER	4		
	36	VKY4670-001	CASSETTE SPRING	2		
	40	VKM3834-00F	HEAD MOUNT ASSY	1	A Mecha.	
		VKM3832-00F	HEAD MOUNT ASSY	1	B Mecha.	
	46	MXS00220MVL0	CASSETTE SWITCH	7		
	47	DN6851-HI	I.C(M)	2		
	48	VKS3630-001MM	I.C.PROTECTOR	2		
	49	VMC0314-P08	CONNECT TERMINAL	1	A Mecha.	
		VMC0314-P14	CONNECT TERMINAL	1	B Mecha.	
	50	QSEC001-E03	LEVER SWITCH	2		
	51	1SR139-400	SI DIODE	2		
	52	VWSC04-11A13K	FLAT WIRE ASSY	1		

Electrical Parts List (ENH-302M)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC701	TDA7294	I.C(M)	
	IC702	TDA7294	I.C(M)	
		DIODES		
	D001	1N5402M-20	DIODE	
	D002	1N5402M-20	DIODE	
	D003	1N5402M-20	DIODE	
	D004	1N5402M-20	DIODE	
	D011	30D2FC	GE.DIODE	
	D012	30D2FC	GE.DIODE	
	D013	30D2FC	GE.DIODE	
	D014	30D2FC	GE.DIODE	
	D015	30D2FC	GE.DIODE	
	D016	30D2FC	GE.DIODE	
	D017	1SR35-100	SI.DIODE	
	D018	1SR35-100	SI.DIODE	
	D019	MTZ30JC	ZENER DIODE	
	D020	MTZ5.6JC	ZENER DIODE	
	D021	MTZ5.1JB	ZENER DIODE	
	D022	1SS133	SI.DIODE	
	D023	1SS133	SI.DIODE	
	D024	1SS133	SI.DIODE	
	D025	1SS133	SI.DIODE	
	D027	1SR35-100	SI.DIODE	
	D030	MTZ9.1JC	ZENER DIODE	
	D060	MTZ5.1JB	ZENER DIODE	
	D061	MTZ11JC	ZENER DIODE	
	D062	MTZ13JC	ZENER DIODE	
	D063	MTZ11JC	ZENER DIODE	
	D064	MTZ13JC	ZENER DIODE	
	D065	MTZ8.2JC	ZENER DIODE	
	D066	MTZ13JC	ZENER DIODE	
	D067	MTZ13JC	ZENER DIODE	
	D068	MTZ13JC	ZENER DIODE	
	D069	MTZ13JC	ZENER DIODE	
	D070	MTZ13JC	ZENER DIODE	
	D703	1SS133	SI.DIODE	
	D704	1SS133	SI.DIODE	
	D719	1SS133	SI.DIODE	
	D720	1SS133	SI.DIODE	
	D728	1SS133	SI.DIODE	
	D751	1SS133	SI.DIODE	
	D752	1SS133	SI.DIODE	
	D753	1SS133	SI.DIODE	
	D754	1SS133	SI.DIODE	
	D755	1SS133	SI.DIODE	
	D756	1SS133	SI.DIODE	
	D757	MTZ3.9JB	ZENER DIODE	
	D758	MTZ3.9JB	ZENER DIODE	
	D759	1SS133	SI.DIODE	
	D760	1SS133	SI.DIODE	
	D1060	MTZ2.4JB	ZENER DIODE	
		TRANSISTORS		
	Q001	2SB1187(F,G)	SI.TRANSISTOR	
	Q003	KRC107M-T	DIGITAL TRANSISTOR	
	Q004	KRC107M-T	DIGITAL TRANSISTOR	
	Q005	KRC102M-T	DIGITAL TRANSISTOR	
	Q040	2SC945A	SI.TRANSISTOR	
	Q060	2SD2061(F,G)	SI.TRANSISTOR	
	Q061	2SC945A	SI.TRANSISTOR	
	Q062	2SC945A	SI.TRANSISTOR	
	Q063	2SD2061(F,G)	SI.TRANSISTOR	
	Q064	2SA933S(RS)	SI.TRANSISTOR	
	Q065	2SC945A	SI.TRANSISTOR	
	Q066	2SD2061(F,G)	SI.TRANSISTOR	
	Q067	2SA933S(RS)	SI.TRANSISTOR	
	Q068	2SC945A	SI.TRANSISTOR	
	Q069	2SD2061(F,G)	SI.TRANSISTOR	
	Q070	2SC945A	SI.TRANSISTOR	
	Q071	2SB1187(F,G)	SI.TRANSISTOR	
	Q072	2SA933S(RS)	SI.TRANSISTOR	
	Q073	KRA104M-T	DIGITAL TRANSISTOR	
	Q074	DTC144ES	DIGITAL TRANSISTOR	
	Q075	KRC104M-T	DIGITAL TRANSISTOR	
	Q076	DTA144ES	DIGITAL TRANSISTOR	
	Q701	2SA1038(R,S)	SI.TRANSISTOR	
	Q702	2SA1038(R,S)	SI.TRANSISTOR	
	Q726	2SC2389(S,E)	SI.TRANSISTOR	
	Q727	2SA1038(R,S)	SI.TRANSISTOR	
	Q728	2SC1740S(R,S)	SI.TRANSISTOR	
	Q733	2SD2144S(VW)	SI.TRANSISTOR	
	Q734	2SD2144S(VW)	SI.TRANSISTOR	
	Q735	2SD2144S(VW)	SI.TRANSISTOR	
	Q736	2SD2144S(VW)	SI.TRANSISTOR	
	Q737	KRA111M-T	DIGITAL TRANSISTOR	
	Q751	2SC1685	SI.TRANSISTOR	
	Q752	2SA933S(RS)	SI.TRANSISTOR	
	Q753	2SC1685	SI.TRANSISTOR	
	Q754	2SA933S(RS)	SI.TRANSISTOR	
	Q755	2SA965(Y)	SI.TRANSISTOR	
	Q756	2SC2235(O,Y)	SI.TRANSISTOR	
	Q1057	2SK301(P,Q)	F.E.T.	
		CAPACITORS		
	C001	QFV82AJ-104	0.1MF 100V THIN FILM CAP.	
	C002	QFV82AJ-104	0.1MF 100V THIN FILM CAP.	
	C003	QFV82AJ-104	0.1MF 100V THIN FILM CAP.	
	C004	QETM1HM-228	2200MF 50V E.CAP.	
	C005	QETM1HM-228	2200MF 50V E.CAP.	
	C011	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C012	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C013	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C014	QETM1VM-228J7	2200MF 35V E.CAP.	
	C015	QETM1VM-228J7	2200MF 35V E.CAP.	
	C016	QETN1VM-107Z	100MF 35V E.CAP.	
	C017	QETN1JM-476Z	47MF 63V E.CAP.	
	C018	QETN1HM-226Z	22MF 50V AL E.CAP.	
	C019	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C020	QETN1HM-226Z	22MF 50V AL E.CAP.	
	C021	QETN1HM-475Z	4.7MF 50V AL E.CAP.	
	C022	QETN1HM-475Z	4.7MF 50V AL E.CAP.	
	C023	QETN1HM-225Z	2.2MF 50V AL E.CAP.	
	C024	QETN1EM-106Z	10MF 25V E.CAP.	
	C032	QETN1AM-477Z	470MF 10V E.CAP.	
	C033	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C060	QETN1EM-226Z	22MF 25V E.CAP.	
	C061	QCF21HP-103A	0.01MF 50V CER.CAP.	
	C062	QETN1EM-226Z	22MF 25V E.CAP.	
	C063	QETN1EM-226Z	22MF 25V E.CAP.	
	C064	QCF21HP-103A	0.01MF 50V CER.CAP.	
	C065	QETN1EM-226Z	22MF 25V E.CAP.	
	C066	QETN1EM-226Z	22MF 25V E.CAP.	
	C067	QCF21HP-103A	0.01MF 50V CER.CAP.	
	C068	QETN1EM-226Z	22MF 25V E.CAP.	
	C069	QETN1EM-226Z	22MF 25V E.CAP.	
	C070	QCF21HP-103A	0.01MF 50V CER.CAP.	
	C071	QETN1EM-226Z	22MF 25V E.CAP.	
	C072	QETN1EM-226Z	22MF 25V E.CAP.	
	C073	QCF21HP-103A	0.01MF 50V CER.CAP.	
	C074	QETN1EM-226Z	22MF 25V E.CAP.	
	C103	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C703	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C704	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C705	QCBB1HK-181Y	180PF 50V CER.CAP.	
	C706	QCBB1HK-181Y	180PF 50V CER.CAP.	
	C707	QETN1EM-476Z	47MF 25V E.CAP.	
	C708	QETN1EM-476Z	47MF 25V E.CAP.	
	C709	QCSB1HJ-100Y	10PF 50V CER.CAP.	
	C710	QCSB1HJ-100Y	10PF 50V CER.CAP.	
	C711	QETN1HM-226Z	22MF 50V AL E.CAP.	
	C712	QETN1HM-226Z	22MF 50V AL E.CAP.	
	C713	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C714	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C715	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C716	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C721	QETN1HM-225Z	2.2MF 50V AL E.CAP.	
	C722	QETN1HM-225Z	2.2MF 50V AL E.CAP.	
	C726	QETN1EM-106Z	10MF 25V E.CAP.	
	C729	QETN1CM-476Z	47MF 16V AL E.CAP.	
	C751	QCY31HK-272Z	2700PF 50V CER.CAP.	
	C752	QCY31HK-272Z	2700PF 50V CER.CAP.	
	C753	QCY31HK-472Z	4700PF 50V CER.CAP.	
	C754	QCY31HK-472Z	4700PF 50V CER.CAP.	

Electrical Parts List (ENH-302M)

⚠	Item	Parts Number	Description	Area
	C755	QFV81HJ-105	1MF 50V THIN FILM CAP.	
	C756	QFV81HJ-105	1MF 50V THIN FILM CAP.	
	C757	QCXB1CM-152Y	1500PF 16V CER.CAP.	
	C758	QCXB1CM-152Y	1500PF 16V CER.CAP.	
	C799	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C1017	QFLB1HJ-823	0.082MF 50V MYLAR CAP.	
	C1018	QETN1HM-224Z	0.22MF 50V AL E.CAP.	
		RESISTORS		
	R003	QRD167J-332	3.3K 1/6W CARBON RES.	
	R004	QRD167J-223	22K 1/6W CARBON RES.	
	R005	QRD161J-104	100K 1/6W CARBON RES.	
⚠	R006	QRZ0077-4R7	4.7 1/4W FUSE RESISTO	
⚠	R007	QRZ0077-4R7	4.7 1/4W FUSE RESISTO	
	R008	QRD161J-103	10K 1/6W CARBON RES.	
	R009	QRD161J-103	10K 1/6W CARBON RES.	
	R010	QRD161J-472	4.7K 1/6W CARBON RES.	
	R011	QRD161J-102	1K 1/6W CARBON RES.	
	R012	QRD167J-223	22K 1/6W CARBON RES.	
	R013	QRD161J-103	10K 1/6W CARBON RES.	
	R014	QRD161J-104	100K 1/6W CARBON RES.	
⚠	R030	QRD14CJ-221S	220 1/4W UNF.CARBON R	
	R040	QRD12CJ-471SX	470 1/2W UNF.CARBON R	
	R041	QRD12CJ-471SX	470 1/2W UNF.CARBON R	
	R042	QRD161J-222	2.2K 1/6W CARBON RES.	
	R045	QRD161J-222	2.2K 1/6W CARBON RES.	
	R062	QRD161J-331	330 1/6W CARBON RES.	
	R063	QRD161J-331	330 1/6W CARBON RES.	
	R064	QRD161J-122	1.2K 1/6W CARBON RES.	
	R065	QRD161J-561	560 1/6W CARBON RES.	
	R066	QRD161J-561	560 1/6W CARBON RES.	
	R067	QRD161J-122	1.2K 1/6W CARBON RES.	
	R068	QRD161J-331	330 1/6W CARBON RES.	
	R071	QRD161J-221	220 1/6W CARBON RES.	
	R072	QRD161J-681	680 1/6W CARBON RES.	
	R073	QRD161J-182	1.8K 1/6W CARBON RES.	
	R076	QRD161J-221	220 1/6W CARBON RES.	
	R077	QRD161J-681	680 1/6W CARBON RES.	
	R078	QRD161J-182	1.8K 1/6W CARBON RES.	
	R081	QRD167J-272	2.7K 1/6W CARBON RES.	
	R082	QRD167J-562	5.6K 1/6W CARBON RES.	
	R084	QRD167J-272	2.7K 1/6W CARBON RES.	
	R085	QRD167J-562	5.6K 1/6W CARBON RES.	
⚠	R701	QRD14CJ-100SX	10 1/4W UNF.CARBON R	
⚠	R702	QRD14CJ-100SX	10 1/4W UNF.CARBON R	
	R703	QRD161J-563	56K 1/6W CARBON RES.	
	R704	QRD161J-563	56K 1/6W CARBON RES.	
⚠	R705	QRD14CJ-182SX	1.8K 1/4W UNF.CARBON R	
⚠	R706	QRD14CJ-182SX	1.8K 1/4W UNF.CARBON R	
	R707	QRD161J-563	56K 1/6W CARBON RES.	
	R708	QRD161J-563	56K 1/6W CARBON RES.	
⚠	R709	QRX014J-R22	0.22 1W METAL FILM R	
⚠	R710	QRX014J-R22	0.22 1W METAL FILM R	
⚠	R711	QRX014J-R22	0.22 1W METAL FILM R	
⚠	R712	QRX014J-R22	0.22 1W METAL FILM R	
⚠	R713	QRD14CJ-100SX	10 1/4W UNF.CARBON R	
⚠	R714	QRD14CJ-100SX	10 1/4W UNF.CARBON R	
⚠	R715	QRD14CJ-100SX	10 1/4W UNF.CARBON R	
⚠	R716	QRD14CJ-100SX	10 1/4W UNF.CARBON R	
	R717	QRD161J-122	1.2K 1/6W CARBON RES.	
	R718	QRD161J-122	1.2K 1/6W CARBON RES.	
	R719	QRD167J-223	22K 1/6W CARBON RES.	
	R720	QRD167J-223	22K 1/6W CARBON RES.	
	R721	QRD161J-103	10K 1/6W CARBON RES.	
	R722	QRD161J-103	10K 1/6W CARBON RES.	
	R723	QRD161J-473	47K 1/6W CARBON RES.	
	R724	QRD161J-473	47K 1/6W CARBON RES.	
	R725	QRD161J-104	100K 1/6W CARBON RES.	
	R726	QRD161J-823	82K 1/6W CARBON RES.	
	R727	QRD161J-104	100K 1/6W CARBON RES.	
	R728	QRD161J-103	10K 1/6W CARBON RES.	
	R729	QRD161J-104	100K 1/6W CARBON RES.	
	R730	QRD161J-103	10K 1/6W CARBON RES.	
	R733	QRD161J-473	47K 1/6W CARBON RES.	
	R734	QRD161J-473	47K 1/6W CARBON RES.	
	R735	QRD161J-473	47K 1/6W CARBON RES.	
	R736	QRD161J-473	47K 1/6W CARBON RES.	
	R739	QRG01DJ-821X	820 1W OXIDE METAL	
	R740	QRG01DJ-821X	820 1W OXIDE METAL	
	R751	QRD167J-223	22K 1/6W CARBON RES.	
	R752	QRD167J-223	22K 1/6W CARBON RES.	
	R753	QRD161J-222	2.2K 1/6W CARBON RES.	
	R754	QRD161J-222	2.2K 1/6W CARBON RES.	
	R755	QRD161J-221	220 1/6W CARBON RES.	
	R756	QRD161J-221	220 1/6W CARBON RES.	
	R757	QRD167J-223	22K 1/6W CARBON RES.	
	R758	QRD167J-223	22K 1/6W CARBON RES.	
	R759	QRD167J-682	6.8K 1/6W CARBON RES.	
	R760	QRD167J-682	6.8K 1/6W CARBON RES.	
	R761	QRD161J-222	2.2K 1/6W CARBON RES.	
	R762	QRD161J-222	2.2K 1/6W CARBON RES.	
	R763	QRD167J-223	22K 1/6W CARBON RES.	
	R764	QRD167J-223	22K 1/6W CARBON RES.	
	R765	QRG01DJ-182X	1.8K 1W OXIDE METAL	
	R766	QRG01DJ-182X	1.8K 1W OXIDE METAL	
⚠	R767	QRD14CJ-681SX	680 1/4W UNF.CARBON R	
⚠	R768	QRD14CJ-681SX	680 1/4W UNF.CARBON R	
	R769	QRD14CJ-821SX	820 1/4W CARBON RES.	
	R770	QRD14CJ-821SX	820 1/4W CARBON RES.	
	R771	QRD161J-821	820 1/6W CARBON RES.	
	R772	QRD161J-821	820 1/6W CARBON RES.	
⚠	R773	QRD14CJ-101S	100 1/4W UNF.CARBON R	
⚠	R774	QRD14CJ-101S	100 1/4W UNF.CARBON R	
	R775	QRD161J-471	470 1/6W CARBON RES.	
	R776	QRD161J-471	470 1/6W CARBON RES.	
	R777	QRD14CJ-4R7SX	4.7 1/4W UNF.CARBON R	
	R778	QRD14CJ-4R7SX	4.7 1/4W UNF.CARBON R	
	R1056	QRD161J-392	3.9K 1/6W CARBON RES.	
	R1057	QRD161J-105	1M 1/6W CARBON RES.	
	R1058	QRD161J-475	4.7M 1/6W CARBON RES.	
	R1059	QRD161J-473	47K 1/6W CARBON RES.	
	R1060	QRD167J-153	15K 1/6W CARBON RES.	
		OTHERS		
		EMW10687-002	PRINTED BOARD	
		QWE880-12RR	VINYL WIRE	
	L701	EQL0011-R45J1	INDUCTOR	
	L702	EQL0011-R45J1	INDUCTOR	
	CN002	EMV7163-011	CONNECT TERMINAL	
	CN003	EMV7163-010	CONNECT TERMINAL	
	CN005	EMV7163-006	CONNECT TERMINAL	
	CN006	EMV7163-010	CONNECT TERMINAL	
	CN007	EMV7163-009	CONNECT TERMINAL	
	CN009	EMV5138-005	CONNECT TERMINAL	
	CN012	EMV5163-011R	CONNECT TERMINAL	
	CN013	EMV5163-010R	CONNECT TERMINAL	
	CN019	EWS285-002J	SOCKET WIRE ASSY	
	CN111	EMV7145-004Z	SOCKET ASSY	
	CN915	EMV7145-003Z	SOCKET ASSY	
	EP001	EMZ4002-002Z	EARTH PLATE	
	EP002	EMZ4002-002Z	EARTH PLATE	
	FT011	EMG7331-003Z	FUSE CLIP	
	FT012	EMG7331-003Z	FUSE CLIP	
	FT511	EMG7331-003Z	FUSE CLIP	
	FT512	EMG7331-003Z	FUSE CLIP	
	FT521	EMG7331-003Z	FUSE CLIP	
	FT522	EMG7331-003Z	FUSE CLIP	
	FW101	EWR34D-13LS	FLAT WIRE	
	FW401	EWR34D-16LS	FLAT WIRE	
	TB001	EMZ4001-002Z	TAB	
	TB002	EMZ4001-002Z	TAB	
	TH002	QAD0095-4R7Z	POSITIVE THERMISTOR	
	TW799	EWPZ01-025	TERMINAL WIRE	

Electrical Parts List (ENB-248M)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC231	HA12136A	I.C(MONO-ANALOG)	
	IC901	HD404719A71FS	I.C(MICRO-COMPUTER)	
	IC902	MN172412JAAW	I.C(MICRO-COMPUTER)	
	IC904	GP1U271X	INFRARED DETECT UNIT	
		DIODES		
	D041	1SS133	SI.DIODE	
	D231	1SR35-100	SI.DIODE	
	D232	SLR-342MCA47	L.E.D.	
	D233	SLR-342MCA47	L.E.D.	
	D234	SLR-342MCA47	L.E.D.	
	D235	SLR-342MCA47	L.E.D.	
	D236	SLR-342MCA47	L.E.D.	
	D237	SLR-342MCA47	L.E.D.	
	D801	MTZ2.4JB	ZENER DIODE	
	D802	SLR-342VC3F	L.E.D.	
	D803	SLR-342VC3F	L.E.D.	
	D804	SLR-342VC3F	L.E.D.	
	D805	SLR-342VC3F	L.E.D.	
	D806	SLR-342VC3F	L.E.D.	
	D901	1SS119	SI.DIODE	
	D902	1SS133	SI.DIODE	
	D904	SLR-342DCA47	L.E.D.	
	D905	SLR-342MCA47	L.E.D.	
	D906	SLR-342MCA47	L.E.D.	
	D907	SLR-342MCA47	L.E.D.	
	D908	SLR-342MCA47	L.E.D.	
	D909	SLR-342MCA47	L.E.D.	
	D910	SLR-342MCA47	L.E.D.	
	D911	SLR-342MCA47	L.E.D.	
	D912	SLR-342MCA47	L.E.D.	
	D913	SLR-342MCA47	L.E.D.	
	D914	SLR-342MCA47	L.E.D.	
	D915	SLR-342MCA47	L.E.D.	
	D916	SLR-342MCA47	L.E.D.	
	D917	SLR-342MCA47	L.E.D.	
	D918	SLR-342MCA47	L.E.D.	
	D919	SLR-342MCA47	L.E.D.	
	D920	1SS133	SI.DIODE	
	D921	1SS133	SI.DIODE	
	D922	1SS133	SI.DIODE	
	D923	MTZ5.6JC	ZENER DIODE	
	D924	MTZ5.6JC	ZENER DIODE	
	D925	MTZ5.6JC	ZENER DIODE	
	D934	1SS133	SI.DIODE	
	D936	1SS133	SI.DIODE	
	D996	1SS119	SI.DIODE	
		TRANSISTORS		
	Q231	2SA934(Q,R)	SI.TRANSISTOR	
	Q232	DTC123YS	DIGITAL TRANSISTOR	
	Q233	2SA934(Q,R)	SI.TRANSISTOR	
	Q234	DTC123YS	DIGITAL TRANSISTOR	
	Q235	2SA933S(RS)	SI.TRANSISTOR	
	Q236	KRC107M-T	DIGITAL TRANSISTOR	
	Q237	KRC107M-T	DIGITAL TRANSISTOR	
	Q901	KRC102M-T	DIGITAL TRANSISTOR	
	Q902	KRC102M-T	DIGITAL TRANSISTOR	
	Q903	KRC102M-T	DIGITAL TRANSISTOR	
	Q904	KRC102M-T	DIGITAL TRANSISTOR	
	Q921	KRC107M-T	DIGITAL TRANSISTOR	
	Q922	DTC114ES	DIGITAL TRANSISTOR	
	Q923	DTC114ES	DIGITAL TRANSISTOR	
	Q924	DTC114ES	DIGITAL TRANSISTOR	
	Q925	DTC114ES	DIGITAL TRANSISTOR	
		CAPACITORS		
	C051	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C052	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C053	QCXB1CM-222Y	2200PF 16V CER.CAP.	
	C054	QCXB1CM-222Y	2200PF 16V CER.CAP.	
	C055	QFLB1HJ-393	0.039MF 50V MYLAR CAP.	
	C056	QFLB1HJ-393	0.039MF 50V MYLAR CAP.	
	C233	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C234	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C235	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C236	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C237	QETC1HM-106ZM	10MF 50V E.CAP.	
	C237	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C238	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C239	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C240	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C241	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C242	EETB1HM-475E	4.7MF 50V E.CAP.	
	C243	QFV81HJ-224	0.22MF 50V THIN FILM CAP.	
	C244	QFV81HJ-224	0.22MF 50V THIN FILM CAP.	
	C245	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C246	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C247	EETB1CM-476	47MF 16V E.CAP.	
	C251	QETN1CM-107Z	100MF 16V E.CAP.	
	C801	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C802	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C901	EETB1AM-107E	100MF 10V E.CAP.	
	C902	QCZ0205-155	1.5MF 25V C.CAP.	
	C903	QEAD0HZ-479ZM	47000MF E.CAP.	
	C904	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C905	QER50JM-107	100MF 6.3V AL E.CAP.	
	C910	QCT26CH-330	33PF 50V CER.CAP.	
	C911	QEAD0HZ-479ZM	47000MF E.CAP.	
	C912	EETB1AM-476E	47MF 10V E.CAP.	
	C914	QCZ0205-155	1.5MF 25V C.CAP.	
	C915	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C916	QER51HM-474G	0.47MF 50V AL E.CAP.	
	TC902	ENZ1003-015	0.1MF TRIMMER CAPA	
		RESISTORS		
	R051	QRD14CJ-4R7SX	4.7 1/4W UNF.CARBON R	
	R052	QRD14CJ-4R7SX	4.7 1/4W UNF.CARBON R	
	R235	QRD167J-153	15K 1/6W CARBON RES.	
	R236	QRD167J-153	15K 1/6W CARBON RES.	
	R237	QRD161J-681	680 1/6W CARBON RES.	
	R238	QRD161J-681	680 1/6W CARBON RES.	
⚠	R239	QRD14CJ-220S	22 1/4W UNF.CARBON R	
	R240	QRD161J-103	10K 1/6W CARBON RES.	
	R241	QRD161J-183	18K 1/6W CARBON RES.	
	R242	QRD161J-183	18K 1/6W CARBON RES.	
	R245	QRD167J-751	750 1/6W CARBON RES.	
	R246	QRD167J-751	750 1/6W CARBON RES.	
	R247	QRD161J-471	470 1/6W CARBON RES.	
⚠	R248	QRX022J-3R3A	3.3 2W METAL FILM R	
	R249	QRD161J-103	10K 1/6W CARBON RES.	
	R250	QRD161J-103	10K 1/6W CARBON RES.	
	R251	QRD161J-103	10K 1/6W CARBON RES.	
	R255	QRD167J-751	750 1/6W CARBON RES.	
	R256	QRD167J-751	750 1/6W CARBON RES.	
	R257	QRD161J-471	470 1/6W CARBON RES.	
⚠	R258	QRX022J-3R3A	3.3 2W METAL FILM R	
	R259	QRD161J-224	220K 1/6W CARBON RES.	
	R260	QRD161J-103	10K 1/6W CARBON RES.	
	R261	QRD161J-473	47K 1/6W CARBON RES.	
	R262	QRD161J-273	27K 1/6W CARBON RES.	
	R263	QRD161J-102	1K 1/6W CARBON RES.	
	R264	QRD161J-103	10K 1/6W CARBON RES.	
	R265	QRD161J-103	10K 1/6W CARBON RES.	
	R266	QRD161J-103	10K 1/6W CARBON RES.	
	R267	QRD161J-103	10K 1/6W CARBON RES.	
	R268	QRD161J-221	220 1/6W CARBON RES.	
	R269	QRD161J-221	220 1/6W CARBON RES.	
	R801	QRD167J-431	430 1/6W CARBON RES.	
	R802	QRD167J-431	430 1/6W CARBON RES.	
	R803	QRD161J-561	560 1/6W CARBON RES.	
	R804	QRD167J-751	750 1/6W CARBON RES.	
	R805	QRD161J-132	1.3K 1/6W CARBON RES.	
	R806	QRD161J-222	2.2K 1/6W CARBON RES.	
	R807	QRD167J-431	430 1/6W CARBON RES.	
	R808	QRD167J-431	430 1/6W CARBON RES.	
	R809	QRD161J-561	560 1/6W CARBON RES.	
	R810	QRD167J-751	750 1/6W CARBON RES.	
	R811	QRD161J-132	1.3K 1/6W CARBON RES.	
	R812	QRD161J-331	330 1/6W CARBON RES.	
	R813	QRD161J-331	330 1/6W CARBON RES.	
	R814	QRD161J-331	330 1/6W CARBON RES.	
	R815	QRD161J-331	330 1/6W CARBON RES.	
	R816	QRD161J-331	330 1/6W CARBON RES.	
	R817	QRD161J-103	10K 1/6W CARBON RES.	

Electrical Parts List (ENB-248M)

⚠	Item	Parts Number	Description	Area
	R818	QRD161J-103	10K 1/6W CARBON RES.	
	R900	QRD161J-103	10K 1/6W CARBON RES.	
	R901	QRD161J-105	1M 1/6W CARBON RES.	
	R902	QRD161J-103	10K 1/6W CARBON RES.	
	R903	QRD161J-220	22 1/6W CARBON RES.	
	R904	QRD161J-222	2.2K 1/6W CARBON RES.	
	R905	QRD161J-103	10K 1/6W CARBON RES.	
	R906	QRD161J-221	220 1/6W CARBON RES.	
	R907	QRD161J-221	220 1/6W CARBON RES.	
	R918	QRD167J-431	430 1/6W CARBON RES.	
	R919	QRD167J-431	430 1/6W CARBON RES.	
	R920	QRD161J-561	560 1/6W CARBON RES.	
	R921	QRD167J-751	750 1/6W CARBON RES.	
	R922	QRD161J-132	1.3K 1/6W CARBON RES.	
	R923	QRD161J-222	2.2K 1/6W CARBON RES.	
	R924	QRD161J-512	5.1K 1/6W CARBON RES.	
	R925	QRD167J-431	430 1/6W CARBON RES.	
	R926	QRD167J-431	430 1/6W CARBON RES.	
	R927	QRD161J-561	560 1/6W CARBON RES.	
	R928	QRD167J-751	750 1/6W CARBON RES.	
	R929	QRD161J-132	1.3K 1/6W CARBON RES.	
	R930	QRD161J-222	2.2K 1/6W CARBON RES.	
	R931	QRD161J-512	5.1K 1/6W CARBON RES.	
	R932	QRD167J-431	430 1/6W CARBON RES.	
	R933	QRD167J-431	430 1/6W CARBON RES.	
	R934	QRD161J-561	560 1/6W CARBON RES.	
	R935	QRD167J-751	750 1/6W CARBON RES.	
	R936	QRD161J-132	1.3K 1/6W CARBON RES.	
	R937	QRD161J-222	2.2K 1/6W CARBON RES.	
	R938	QRD161J-512	5.1K 1/6W CARBON RES.	
	R939	QRD167J-431	430 1/6W CARBON RES.	
	R940	QRD167J-431	430 1/6W CARBON RES.	
	R941	QRD161J-561	560 1/6W CARBON RES.	
	R942	QRD167J-751	750 1/6W CARBON RES.	
	R943	QRD161J-132	1.3K 1/6W CARBON RES.	
	R944	QRD161J-181	180 1/6W CARBON RES.	
	R945	QRD161J-181	180 1/6W CARBON RES.	
	R946	QRD161J-181	180 1/6W CARBON RES.	
	R947	QRD161J-181	180 1/6W CARBON RES.	
	R948	QRD161J-181	180 1/6W CARBON RES.	
	R949	QRD161J-181	180 1/6W CARBON RES.	
	R950	QRD161J-181	180 1/6W CARBON RES.	
	R951	QRD161J-181	180 1/6W CARBON RES.	
	R952	QRD161J-181	180 1/6W CARBON RES.	
	R953	QRD161J-221	220 1/6W CARBON RES.	
	R954	QRD161J-181	180 1/6W CARBON RES.	
	R955	QRD161J-181	180 1/6W CARBON RES.	
	R956	QRD161J-181	180 1/6W CARBON RES.	
	R957	QRD161J-181	180 1/6W CARBON RES.	
	R958	QRD161J-181	180 1/6W CARBON RES.	
	R959	QRD161J-181	180 1/6W CARBON RES.	
	R960	QRD161J-102	1K 1/6W CARBON RES.	
	R961	QRD161J-221	220 1/6W CARBON RES.	
	R962	QRD161J-102	1K 1/6W CARBON RES.	
	R963	QRD161J-222	2.2K 1/6W CARBON RES.	
	R964	QRD161J-221	220 1/6W CARBON RES.	
	R965	QRD161J-221	220 1/6W CARBON RES.	
	R966	QRD161J-221	220 1/6W CARBON RES.	
	R967	QRD161J-221	220 1/6W CARBON RES.	
	R968	QRD161J-221	220 1/6W CARBON RES.	
	R970	QRD167J-223	22K 1/6W CARBON RES.	
	R971	QRD161J-472	4.7K 1/6W CARBON RES.	
	R972	QRD161J-472	4.7K 1/6W CARBON RES.	
	R973	QRD161J-472	4.7K 1/6W CARBON RES.	
	R974	QRD161J-472	4.7K 1/6W CARBON RES.	
	R975	QRD161J-473	47K 1/6W CARBON RES.	
	R976	QRD161J-104	100K 1/6W CARBON RES.	
	R977	QRD161J-104	100K 1/6W CARBON RES.	
	R978	QRD161J-104	100K 1/6W CARBON RES.	
	R979	QRD161J-104	100K 1/6W CARBON RES.	
	R987	QRD161J-103	10K 1/6W CARBON RES.	
	R989	QRD161J-103	10K 1/6W CARBON RES.	
	R991	QRD161J-104	100K 1/6W CARBON RES.	
	R996	QRD167J-151	150 1/6W CARBON RES.	
	RA901	QRB069J-222	2.2K 1/10WNETWORK RES.	
	VR233	QVPA603-103A	10K TRIMMER RES.	
		OTHERS		
		EMW10685-002	PRINTED BOARD	
	J081	EMB10TV-401AJ3	SPEAKER TERMINAL	
	J801	QMS3R80-EE0S	HEADPHONE JACK	
	K801	ENZ8101-007	INDUCTOR	
	S801	ESP0001-023M	TACT SWITCH	
	S802	ESP0001-023M	TACT SWITCH	
	S803	ESP0001-023M	TACT SWITCH	
	S804	ESP0001-023M	TACT SWITCH	
	S805	ESP0001-023M	TACT SWITCH	
	S806	ESP0001-023M	TACT SWITCH	
	S807	ESP0001-023M	TACT SWITCH	
	S808	ESP0001-023M	TACT SWITCH	
	S809	ESP0001-023M	TACT SWITCH	
	S810	ESP0001-023M	TACT SWITCH	
	S811	ESP0001-023M	TACT SWITCH	
	S812	ESP0001-023M	TACT SWITCH	
	S813	ESP0001-023M	TACT SWITCH	
	S901	ESP0001-023M	TACT SWITCH	
	S902	ESP0001-023M	TACT SWITCH	
	S903	ESP0001-023M	TACT SWITCH	
	S904	ESP0001-023M	TACT SWITCH	
	S905	ESP0001-023M	TACT SWITCH	
	S906	ESP0001-023M	TACT SWITCH	
	S907	ESP0001-023M	TACT SWITCH	
	S908	ESP0001-023M	TACT SWITCH	
	S909	ESP0001-023M	TACT SWITCH	
	S910	ESP0001-023M	TACT SWITCH	
	S911	ESP0001-023M	TACT SWITCH	
	S912	ESP0001-023M	TACT SWITCH	
	S913	ESP0001-023M	TACT SWITCH	
	S914	ESP0001-023M	TACT SWITCH	
	S915	ESP0001-023M	TACT SWITCH	
	S916	ESP0001-023M	TACT SWITCH	
	S917	ESP0001-023M	TACT SWITCH	
	S918	ESP0001-023M	TACT SWITCH	
	S919	ESP0001-023M	TACT SWITCH	
	S920	ESP0001-023M	TACT SWITCH	
	S921	ESP0001-023M	TACT SWITCH	
	S922	ESP0001-023M	TACT SWITCH	
	S923	ESP0001-023M	TACT SWITCH	
	S924	ESP0001-023M	TACT SWITCH	
	S925	ESP0001-023M	TACT SWITCH	
	S926	ESP0001-023M	TACT SWITCH	
	S927	ESP0001-023M	TACT SWITCH	
	S928	ESP0001-023M	TACT SWITCH	
	S929	ESP0001-023M	TACT SWITCH	
	S930	ESP0001-023M	TACT SWITCH	
	X901	ECX0004-194KM	CERAMIC RESONATOR	
	X902	ECX0006-000KNJ	CRYSTAL	
	BK901	E309782-002SM	P.W.BOARD BRACKET	
	BK902	E310200-001SM	L.E.D.HOLDER	
	CN015	EMV5163-006R	CONNECT TERMINAL	
	CN101	EMV7163-012	CONNECT TERMINAL	
	CN121	EWS26C-A408	FLAT WIRE ASSY	
	CN301	EMV7172-014R	CONNECT TERMINAL	
	CN302	EMV7172-014R	CONNECT TERMINAL	
	CN313	VMC0314-S14	CONNECT TERMINAL	
	CN314	VMC0314-S08	CONNECT TERMINAL	
	CN401	VMC0163-R25	CONNECT TERMINAL	
	CN402	EWS265-A412	SOCKET WIRE ASSY	
	CN403	EMV7160-016	CONNECT TERMINAL	
	DI901	QLF0012-001	FLUORESCENT DISPLAY TUBE	
	FS901	E3400-439	FELT SPACER	
	FS902	E3400-439	FELT SPACER	
	FW401	VWSC12-083K3K	FLAT WIRE ASSY	
	FW402	EWR33D-25LS	FLAT WIRE	
	JS801	QSJ4003-E01	PUSH SWITCH	
	RY001	ESK7D24-213R	RELAY	
	SP901	VYH7653-001	LEAF SPRING	
	SP902	VYH7653-001	LEAF SPRING	
	TW001	EWT015-001	TERMINAL WIRE	
	TW003	EWT015-018	TERMINAL WIRE ASSY	

Electrical Parts List (ENC-136M)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC301	MN173222JAAX1	I.C(MICRO-COMPUTER)	
	IC302	BA15218N	I.C(MONO-ANALOG)	
	IC303	BA15218N	I.C(MONO-ANALOG)	
	IC304	BA3126N	I.C(MONO-ANALOG)	
	IC305	HA12206NT	I.C(MONO-ANALOG)	
	IC401	TDA7439	I.C(M)	
	IC402	BA15218	I.C(MONO-ANALOG)	
	IC405	BA15218	I.C(MONO-ANALOG)	
	IC407	BA15218	I.C(MONO-ANALOG)	
		DIODES		
	D201	1SS133	SI.DIODE	
	D202	1SS133	SI.DIODE	
	D203	1SS133	SI.DIODE	
	D290	1SS133	SI.DIODE	
	D303	1SS133	SI.DIODE	
	D305	MTZ7.5JC	ZENER DIODE	
	D306	MTZ7.5JC	ZENER DIODE	
	D307	1SS133	SI.DIODE	
	D308	1SS133	SI.DIODE	
	D481	1SS133	SI.DIODE	
	D482	1SS133	SI.DIODE	
		TRANSISTORS		
	Q201	KRC107M-T	DIGITAL TRANSISTOR	
	Q321	2SD2144S(VW)	SI.TRANSISTOR	
	Q322	2SD2144S(VW)	SI.TRANSISTOR	
	Q323	KRA107M-T	DIGITAL TRANSISTOR	
	Q324	2SD2144S(VW)	SI.TRANSISTOR	
	Q325	2SD2144S(VW)	SI.TRANSISTOR	
	Q326	2SC1740S(R,S)	SI.TRANSISTOR	
	Q327	2SC1740S(R,S)	SI.TRANSISTOR	
	Q328	2SC1740S(R,S)	SI.TRANSISTOR	
	Q329	2SC1740S(R,S)	SI.TRANSISTOR	
	Q330	2SC1740S(R,S)	SI.TRANSISTOR	
	Q331	KRA104M-T	DIGITAL TRANSISTOR	
	Q341	KRC107M-T	DIGITAL TRANSISTOR	
	Q342	KRC107M-T	DIGITAL TRANSISTOR	
	Q343	KRC107M-T	DIGITAL TRANSISTOR	
	Q401	2SD2144S(VW)	SI.TRANSISTOR	
	Q402	2SD2144S(VW)	SI.TRANSISTOR	
	Q403	KRA102M-T	DIGITAL TRANSISTOR	
	Q481	2SD2144S(VW)	SI.TRANSISTOR	
	Q482	2SD2144S(VW)	SI.TRANSISTOR	
	Q483	KRA102M-T	DIGITAL TRANSISTOR	
	Q491	KRC102M-T	DIGITAL TRANSISTOR	
	Q492	2SB1565(E,F)	SI.TRANSISTOR	
		CAPACITORS		
	C201	QETN1AM-227Z	220MF 10V E.CAP.	
	C202	QCZ0205-155	1.5MF 25V C.CAP.	
	C203	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C205	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C206	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C211	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C231	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C232	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C305	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C306	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C315	EETB1HM-105E	1MF 50V E.CAP.	
	C316	EETB1HM-105E	1MF 50V E.CAP.	
	C317	EETB1EM-106E	10MF 25V E.CAP.	
	C318	QETN1CM-107Z	100MF 16V E.CAP.	
	C319	QCF21HP-223A	0.022MF 50V CER.CAP.	
	C320	QFLB1HJ-682	6800PF 50V MYLAR CAP.	
	C321	QFLB1HJ-332	3300PF 50V MYLAR CAP.	
	C322	QFLB1HJ-332	3300PF 50V MYLAR CAP.	
	C323	QFLB1HJ-183	0.018MF 50V MYLAR CAP.	
	C324	QFP31HG-472	4700PF 50V POLYPROPY.FILM	
	C325	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C326	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C327	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C328	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C335	QCF21HP-472	4700PF 50V CER.CAP.	
	C336	QCF21HP-472	4700PF 50V CER.CAP.	
	C339	EETB1CM-476	47MF 16V E.CAP.	
	C340	EETB1CM-476	47MF 16V E.CAP.	
	C341	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C342	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C343	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C344	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C345	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C346	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C347	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C348	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C351	QCBB1HK-821Y	820PF 50V CER.CAP.	
	C352	QETN1HM-474Z	0.47MF 50V AL E.CAP.	
	C353	QETN1HM-476Z	47MF 50V E.CAP.	
	C365	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C366	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C367	QFLB1HJ-822	8200PF 50V MYLAR CAP.	
	C368	QFLB1HJ-822	8200PF 50V MYLAR CAP.	
	C369	EETB1AM-107E	100MF 10V E.CAP.	
	C370	EETB1AM-107E	100MF 10V E.CAP.	
	C371	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C372	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C373	EETB1CM-476	47MF 16V E.CAP.	
	C374	QETC1EM-476ZM	47MF 25V E.CAP.	
	C375	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C376	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C377	QCXB1CM-122	1200PF 16V POLYPROPY.FILM	
	C378	QCXB1CM-122	1200PF 16V POLYPROPY.FILM	
	C379	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C380	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C381	EETB1CM-476	47MF 16V E.CAP.	
	C385	QFLB1HJ-822	8200PF 50V MYLAR CAP.	
	C386	QFLB1HJ-822	8200PF 50V MYLAR CAP.	
	C387	EETB1AM-107E	100MF 10V E.CAP.	
	C388	EETB1AM-107E	100MF 10V E.CAP.	
	C389	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C390	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C391	EETB1CM-476	47MF 16V E.CAP.	
	C392	EETB1CM-476	47MF 16V E.CAP.	
	C393	QCS21HJ-101A	100PF 50V CER.CAP.	
	C394	QCS21HJ-101A	100PF 50V CER.CAP.	
	C395	QCXB1CM-152Y	1500PF 16V CER.CAP.	
	C396	QCXB1CM-152Y	1500PF 16V CER.CAP.	
	C397	QCBB1HK-391Y	390PF 50V CER.CAP.	
	C398	QCBB1HK-391Y	390PF 50V CER.CAP.	
	C401	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C402	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C403	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C404	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C405	EETB1EM-106E	10MF 25V E.CAP.	
	C406	EETB1EM-106E	10MF 25V E.CAP.	
	C407	EETB1EM-106E	10MF 25V E.CAP.	
	C408	EETB1EM-106E	10MF 25V E.CAP.	
	C409	QFLB1HJ-392	3900PF 50V MYLAR CAP.	
	C410	QFLB1HJ-392	3900PF 50V MYLAR CAP.	
	C411	EETB1EM-106E	10MF 25V E.CAP.	
	C412	EETB1EM-106E	10MF 25V E.CAP.	
	C413	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C414	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C415	EETB1EM-106E	10MF 25V E.CAP.	
	C416	EETB1EM-106E	10MF 25V E.CAP.	
	C417	EETB1EM-106E	10MF 25V E.CAP.	

Electrical Parts List (ENC-136M)

⚠	Item	Parts Number	Description	Area
	C418	EETB1EM-106E	10MF 25V E.CAP.	
	C419	EETB1EM-106E	10MF 25V E.CAP.	
	C420	QETC1EM-476ZM	47MF 25V E.CAP.	
	C421	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C422	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C423	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C424	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C425	QFLB1HJ-183	0.018MF 50V MYLAR CAP.	
	C426	QFLB1HJ-183	0.018MF 50V MYLAR CAP.	
	C427	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C428	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C429	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C430	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C431	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C432	QETC1HM-225ZM	2.2MF 50V E.CAP.	
	C433	EETB1HM-105E	1MF 50V E.CAP.	
	C434	EETB1HM-105E	1MF 50V E.CAP.	
	C435	EETB1EM-106E	10MF 25V E.CAP.	
	C436	EETB1EM-106E	10MF 25V E.CAP.	
	C443	EETB1EM-106E	10MF 25V E.CAP.	
	C444	EETB1EM-106E	10MF 25V E.CAP.	
	C445	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C446	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C447	EETB1EM-106E	10MF 25V E.CAP.	
	C448	EETB1EM-106E	10MF 25V E.CAP.	
	C471	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C472	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C473	QETC1EM-476ZM	47MF 25V E.CAP.	
	C474	QETC1EM-476ZM	47MF 25V E.CAP.	
	C475	EETB1EM-106E	10MF 25V E.CAP.	
	C476	EETB1EM-106E	10MF 25V E.CAP.	
	C477	EETB1HM-475E	4.7MF 50V E.CAP.	
	C481	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C482	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C483	QCXB1CM-222Y	2200PF 16V CER.CAP.	
	C484	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C485	QETB1AM-107	100MF 10V AL E.CAP.	
	C489	QETB1CM-476	47MF 16V AL E.CAP.	
	C490	QETB1CM-476	47MF 16V AL E.CAP.	
	C493	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C494	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C495	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C496	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
		RESISTORS		
	R202	QRD161J-102	1K 1/6W CARBON RES.	
	R203	QRD161J-102	1K 1/6W CARBON RES.	
	R204	QRD161J-102	1K 1/6W CARBON RES.	
	R205	QRD161J-102	1K 1/6W CARBON RES.	
	R206	QRD161J-103	10K 1/6W CARBON RES.	
	R207	QRD161J-103	10K 1/6W CARBON RES.	
	R208	QRD161J-472	4.7K 1/6W CARBON RES.	
	R209	QRD167J-223	22K 1/6W CARBON RES.	
	R211	QRD161J-103	10K 1/6W CARBON RES.	
	R213	QRD161J-472	4.7K 1/6W CARBON RES.	
	R214	QRD161J-103	10K 1/6W CARBON RES.	
	R217	QRD161J-103	10K 1/6W CARBON RES.	
	R218	QRD161J-221	220 1/6W CARBON RES.	
	R231	QRD161J-183	18K 1/6W CARBON RES.	
	R232	QRD161J-183	18K 1/6W CARBON RES.	
	R233	QRD167J-153	15K 1/6W CARBON RES.	
	R234	QRD167J-153	15K 1/6W CARBON RES.	
	R271	QRD161J-104	100K 1/6W CARBON RES.	
	R272	QRD161J-104	100K 1/6W CARBON RES.	
	R280	QRD161J-221	220 1/6W CARBON RES.	
	R281	QRD161J-224	220K 1/6W CARBON RES.	
	R282	QRD161J-224	220K 1/6W CARBON RES.	
	R283	QRD161J-100	10 1/6W CARBON RES.	
	R284	QRD161J-100	10 1/6W CARBON RES.	
	R285	QRD161J-393	39K 1/6W CARBON RES.	
	R286	QRD161J-393	39K 1/6W CARBON RES.	
	R287	QRD14CJ-6R8SX	6.8 1/4W UNF.CARBON R	
⚠	R288	QRZ0077-100	10 1/4W FUSIBLE RES.	
	R290	QRD167J-332	3.3K 1/6W CARBON RES.	
	R292	QRD161J-181	180 1/6W CARBON RES.	
	R293	QRD167J-511	510 1/6W CARBON RES.	
	R294	QRD161J-561	560 1/6W CARBON RES.	
	R296	QRD161J-104	100K 1/6W CARBON RES.	
	R297	QRD161J-222	2.2K 1/6W CARBON RES.	
	R298	QRD161J-561	560 1/6W CARBON RES.	
	R335	QRD161J-102	1K 1/6W CARBON RES.	
	R336	QRD161J-102	1K 1/6W CARBON RES.	
	R337	QRD161J-102	1K 1/6W CARBON RES.	
	R338	QRD161J-102	1K 1/6W CARBON RES.	
	R339	QRD161J-393	39K 1/6W CARBON RES.	
	R340	QRD161J-393	39K 1/6W CARBON RES.	
	R341	QRD167J-272	2.7K 1/6W CARBON RES.	
	R342	QRD167J-272	2.7K 1/6W CARBON RES.	
	R343	QRD167J-223	22K 1/6W CARBON RES.	
	R344	QRD161J-563	56K 1/6W CARBON RES.	
	R345	QRD161J-184	180K 1/6W CARBON RES.	
	R346	QRD161J-105	1M 1/6W CARBON RES.	
	R347	QRD161J-221	220 1/6W CARBON RES.	
	R348	QRD161J-221	220 1/6W CARBON RES.	
	R349	QRD161J-102	1K 1/6W CARBON RES.	
	R351	QRD161J-472	4.7K 1/6W CARBON RES.	
	R352	QRD161J-472	4.7K 1/6W CARBON RES.	
	R353	QRD167J-223	22K 1/6W CARBON RES.	
	R354	QRD167J-223	22K 1/6W CARBON RES.	
	R355	QRD161J-103	10K 1/6W CARBON RES.	
	R356	QRD161J-103	10K 1/6W CARBON RES.	
	R357	QRD167J-223	22K 1/6W CARBON RES.	
	R358	QRD167J-223	22K 1/6W CARBON RES.	
	R359	QRD161J-103	10K 1/6W CARBON RES.	
	R360	QRD161J-103	10K 1/6W CARBON RES.	
	R361	QRD167J-562	5.6K 1/6W CARBON RES.	
	R362	QRD167J-562	5.6K 1/6W CARBON RES.	
	R365	QRD161J-470	47 1/6W CARBON RES.	
	R366	QRD161J-470	47 1/6W CARBON RES.	
	R367	QRD161J-224	220K 1/6W CARBON RES.	
	R368	QRD161J-224	220K 1/6W CARBON RES.	
	R371	QRD161J-163	16K 1/6W CARBON RES.	
	R372	QRD161J-163	16K 1/6W CARBON RES.	
	R377	QRD161J-221	220 1/6W CARBON RES.	
	R378	QRD161J-221	220 1/6W CARBON RES.	
	R381	QRD161J-221	220 1/6W CARBON RES.	
	R382	QRD161J-221	220 1/6W CARBON RES.	
	R383	QRD161J-470	47 1/6W CARBON RES.	
	R384	QRD161J-470	47 1/6W CARBON RES.	
	R385	QRD161J-224	220K 1/6W CARBON RES.	
	R386	QRD161J-224	220K 1/6W CARBON RES.	
	R391	QRD161J-163	16K 1/6W CARBON RES.	
	R392	QRD161J-163	16K 1/6W CARBON RES.	
	R401	QRD161J-222	2.2K 1/6W CARBON RES.	
	R402	QRD161J-222	2.2K 1/6W CARBON RES.	
	R403	QRD161J-222	2.2K 1/6W CARBON RES.	
	R404	QRD161J-222	2.2K 1/6W CARBON RES.	
	R405	QRD167J-152	1.5K 1/6W CARBON RES.	
	R406	QRD167J-152	1.5K 1/6W CARBON RES.	
	R407	QRD167J-562	5.6K 1/6W CARBON RES.	
	R408	QRD167J-562	5.6K 1/6W CARBON RES.	
	R409	QRD167J-332	3.3K 1/6W CARBON RES.	
	R410	QRD167J-332	3.3K 1/6W CARBON RES.	
	R411	QRD167J-562	5.6K 1/6W CARBON RES.	
	R412	QRD167J-562	5.6K 1/6W CARBON RES.	

Electrical Parts List (ENC-136M)

⚠	Item	Parts Number	Description	Area
	R413	QRD161J-102	1K 1/6W CARBON RES.	
	R414	QRD161J-102	1K 1/6W CARBON RES.	
	R415	QRD161J-823	82K 1/6W CARBON RES.	
	R416	QRD161J-823	82K 1/6W CARBON RES.	
	R417	QRD167J-562	5.6K 1/6W CARBON RES.	
	R418	QRD167J-562	5.6K 1/6W CARBON RES.	
	R419	QRD167J-272	2.7K 1/6W CARBON RES.	
	R420	QRD167J-272	2.7K 1/6W CARBON RES.	
	R421	QRD161J-104	100K 1/6W CARBON RES.	
	R422	QRD161J-104	100K 1/6W CARBON RES.	
	R431	QRD161J-104	100K 1/6W CARBON RES.	
	R432	QRD161J-104	100K 1/6W CARBON RES.	
	R433	QRD167J-562	5.6K 1/6W CARBON RES.	
	R434	QRD167J-562	5.6K 1/6W CARBON RES.	
	R435	QRD161J-392	3.9K 1/6W CARBON RES.	
	R436	QRD161J-392	3.9K 1/6W CARBON RES.	
	R437	QRD161J-472	4.7K 1/6W CARBON RES.	
	R438	QRD161J-472	4.7K 1/6W CARBON RES.	
	R439	QRD161J-432	4.3K 1/6W CARBON RES.	
	R440	QRD161J-432	4.3K 1/6W CARBON RES.	
	R441	QRD161J-104	100K 1/6W CARBON RES.	
	R442	QRD161J-104	100K 1/6W CARBON RES.	
	R453	QRD161J-104	100K 1/6W CARBON RES.	
	R454	QRD161J-104	100K 1/6W CARBON RES.	
	R455	QRD161J-103	10K 1/6W CARBON RES.	
	R456	QRD161J-103	10K 1/6W CARBON RES.	
	R457	QRD161J-752	7.5K 1/6W CARBON RES.	
	R458	QRD161J-752	7.5K 1/6W CARBON RES.	
	R459	QRD161J-104	100K 1/6W CARBON RES.	
	R460	QRD161J-104	100K 1/6W CARBON RES.	
	R461	QRD161J-221	220 1/6W CARBON RES.	
	R462	QRD161J-221	220 1/6W CARBON RES.	
	R463	QRD161J-103	10K 1/6W CARBON RES.	
	R464	QRD161J-103	10K 1/6W CARBON RES.	
	R465	QRD161J-102	1K 1/6W CARBON RES.	
	R481	QRD161J-222	2.2K 1/6W CARBON RES.	
	R482	QRD161J-222	2.2K 1/6W CARBON RES.	
	R483	QRD161J-221	220 1/6W CARBON RES.	
	R484	QRD161J-221	220 1/6W CARBON RES.	
	R485	QRD161J-103	10K 1/6W CARBON RES.	
	R486	QRD161J-103	10K 1/6W CARBON RES.	
	R490	QRD161J-221	220 1/6W CARBON RES.	
	R491	QRD161J-471	470 1/6W CARBON RES.	
	R492	QRD161J-103	10K 1/6W CARBON RES.	
	R493	QRD167J-113	11K 1/6W CARBON RES.	
	R494	QRD167J-113	11K 1/6W CARBON RES.	
	R497	QRD161J-104	100K 1/6W CARBON RES.	
	R498	QRD161J-104	100K 1/6W CARBON RES.	
	VR231	QVPA603-503A	50K VARIABLE RES.	
	VR232	QVPA603-503A	50K VARIABLE RES.	
	VR301	QVPA603-102AZA	1K TRIMMER RES.	
	VR302	QVPA603-102AZA	1K TRIMMER RES.	
	VR303	QVPA603-102AZA	1K TRIMMER RES.	
	VR304	QVPA603-102AZA	1K TRIMMER RES.	
	VR305	QVPA603-104A	100K TRIMMER RES.	
	VR306	QVPA603-104A	100K TRIMMER RES.	
	VR307	QVPA603-104A	100K TRIMMER RES.	
	VR308	QVPA603-104A	100K TRIMMER RES.	
	VR309	QVPA603-104A	100K TRIMMER RES.	
	VR310	QVPA603-104A	100K TRIMMER RES.	
		OTHERS		
		EMW10686-002	PRINTED BOARD	
		E3400-431	FELT SPACER	
		QWE350-09RR	VINYL WIRE	
	J401	EMN00TV-414AJ2	4P PIN JACK	
	J701	EMV7145-004Z	SOCKET ASSY	
	K301	ENZ8101-007	INDUCTOR	
	K302	ENZ8101-007	INDUCTOR	
	K303	ENZ8101-007	INDUCTOR	
	K321	ENZ8101-007	INDUCTOR	
	K392	ENZ8101-007	INDUCTOR	
	L301	ENZ6002-012	OSCILLATOR COIL	
	L305	EQL2106-223	INDUCTOR	
	L306	EQL2106-223	INDUCTOR	
	S490	QSS7A12-E01	SLIDE SWITCH	
	X201	ECX0060-000EM	CERAMIC RESONATOR	
	CN016	EMV5163-010R	CONNECT TERMINAL	
	CN017	EMV5163-009R	CONNECT TERMINAL	
	CN131	EMV5109-012A	MALE CONNECTOR	
	CN311	EMV5172-014B	CONNECT TERMINAL	
	CN312	EMV5172-014B	CONNECT TERMINAL	
	CN322	VMC0163-016	CONNECT TERMINAL	
	CN331	EMV7155-106R	CONNECT TERMINAL	
	CN332	EMV7155-106R	CONNECT TERMINAL	
	CN402	VMC0163-017	CONNECT TERMINAL	
	CN411	VMC0163-025	CONNECT TERMINAL	
	CN412	VMC0163-017	CONNECT TERMINAL	
	CN613	VMC0163-007	CONNECT TERMINAL	
	CN614	VMC0163-011	CONNECT TERMINAL	
	CN811	VMC0163-010	AC CONNECTOR	
⚠	CP401	ICP-N15	I.C.PROTECTOR	
	EP003	E409182-001SM	EARTH TERMINAL	
	FS485	E3400-431	FELT SPACER	
	SP301	VYH7653-001	LEAF SPRING	

Electrical Parts List (ENN-488M)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC601	AN8806SB	I.C(MONO-ANALOG)	
	IC602	BA6897FPW	I.C(MONO-ANALOG)	
	IC603	MN35510-S	I.C(M)	
		DIODES		
	D631	MTZ5.6JB	ZENER DIODE	
		TRANSISTORS		
	Q601	2SA952(L.K)	SI.TRANSISTOR	
	Q632	2SC2060(Q.R)	SI.TRANSISTOR	
		CAPACITORS		
	C602	QCZ0205-155	1.5MF 25V C.CAP.	
	C603	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C605	EETB1EM-106E	10MF 25V E.CAP.	
	C606	QCBB1HK-102Y	1000PF 50V CER.CAP.	
	C607	QCBB1HK-102Y	1000PF 50V CER.CAP.	
	C608	EETB1HM-105E	1MF 50V E.CAP.	
	C609	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C610	QFLB1HJ-273	0.027MF 50V MYLAR CAP.	
	C611	QCXB1CM-472Y	4700PF 16V CER.CAP.	
	C612	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C613	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C614	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C615	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C616	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C617	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C618	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C619	QCBB1HK-271Y	270PF 50V CER.CAP.	
	C620	QCSB1HJ-470	47PF 50V CER.CAP.	
	C621	QCBB1HK-102Y	1000PF 50V CER.CAP.	
	C622	QCF21HP-223A	0.022MF 50V CER.CAP.	
	C623	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C625	QCZ0205-155	1.5MF 25V C.CAP.	
	C630	QETN1AM-226ZS	22MF 10V E.CAP.	
	C631	QETN1AM-477Z	470MF 10V E.CAP.	
	C632	QEK61AM-227ZM	220MF 10V AL E.CAP.	
	C636	EETB1AM-107E	100MF 10V E.CAP.	
	C641	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C642	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C651	QCSB1HJ-120Y	12PF 50V CER.CAP.	
	C652	QCSB1HJ-120Y	12PF 50V CER.CAP.	
	C653	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C655	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C661	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C662	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C663	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C664	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C665	QFV81HJ-104	0.1MF 50V THIN FILM CAP.	
	C671	QCXB1CM-222Y	2200PF 16V CER.CAP.	
	C672	QCXB1CM-222Y	2200PF 16V CER.CAP.	
	C674	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C675	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C679	QEK51AM-107	100MF 10V AL E.CAP.	
	C693	QEK61AM-227ZM	220MF 10V AL E.CAP.	
	C694	QCHB1EZ-223	0.022MF 25V CER.CAP.	
		RESISTORS		
	R601	QRD161J-123	12K 1/6W CARBON RES.	
	R603	QRD161J-125	1.2M 1/6W CARBON RES.	
	R605	QRD161J-274	270K 1/6W CARBON RES.	
	R606	QRD167J-154	150K 1/6W CARBON RES.	
	R607	QRD161J-273	27K 1/6W CARBON RES.	
	R609	QRD161J-114	110K 1/6W CARBON RES.	
	R610	QRD161J-104	100K 1/6W CARBON RES.	
	R611	QRD161J-473	47K 1/6W CARBON RES.	
	R612	QRD167J-822	8.2K 1/6W CARBON RES.	
	R613	QRD167J-121	120 1/6W CARBON RES.	
	R614	QRD161J-100	10 1/6W CARBON RES.	
	R615	QRD161J-120	12 1/6W CARBON RES.	
	R616	QRD161J-910Y	91 1/6W CARBON RES.	
	R632	QRD167J-151	150 1/6W CARBON RES.	
	R641	QRD161J-683	68K 1/6W CARBON RES.	
	R642	QRD161J-222	2.2K 1/6W CARBON RES.	
	R643	QRD167J-822	8.2K 1/6W CARBON RES.	
	R644	QRD167J-223	22K 1/6W CARBON RES.	
	R645	QRD167J-223	22K 1/6W CARBON RES.	
	R646	QRD161J-222	2.2K 1/6W CARBON RES.	
	R647	QRD161J-472	4.7K 1/6W CARBON RES.	
	R650	QRD161J-182	1.8K 1/6W CARBON RES.	
	R651	QRD161J-102	1K 1/6W CARBON RES.	
	R652	QRD161J-102	1K 1/6W CARBON RES.	
	R653	QRD161J-102	1K 1/6W CARBON RES.	
	R660	QRD161J-102	1K 1/6W CARBON RES.	
	R661	QRD161J-683	68K 1/6W CARBON RES.	
	R662	QRD167J-275	2.7M 1/6W CARBON RES.	
	R663	QRD161J-124	120K 1/6W CARBON RES.	
	R664	QRD161J-471	470 1/6W CARBON RES.	
	R666	QRD161J-220	22 1/6W CARBON RES.	
	R667	QRD161J-220	22 1/6W CARBON RES.	
	R671	QRD161J-102	1K 1/6W CARBON RES.	
	R672	QRD161J-102	1K 1/6W CARBON RES.	
	R692	QRD161J-271	270 1/6W CARBON RES.	
		OTHERS		
		EMW10688-003A	PRINTED BOARD	
	X651	ECX0169-344EF	CRYSTAL	
	CN601	EMV7171-115R	CONNECT TERMINAL	
	CN602	EMV5109-006A	CONNECT TERMINAL	
	CN603	VMC0163-R07	CONNECT TERMINAL	
	CN604	VMC0163-R11	CONNECT TERMINAL	
	SP601	VYH7237-001	I.C.COVER	
	SP602	VYH7237-003	I.C.COVER	
	SP603	VYH7237-003	I.C.COVER	
	TP601	QMV5004-002K	PLUG ASSY	
	TW601	EWF102-047	TERMINAL WIRE	

Electrical Parts List (ENA-178BM)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC102	LA1837	I.C(MONO-ANALOG)	
	IC121	LC72131	I.C(M)	
	IC191	LC7073	I.C(DIGI-MOS)	
	IC192	SAA6579	I.C(M)	
		DIODES		
	D121	1SS133	SI.DIODE	
	D123	1SS133	SI.DIODE	
	D129	1SS133	SI.DIODE	
	D130	MTZ10JC	ZENER DIODE	
	D131	1SS133	SI.DIODE	
		TRANSISTORS		
	Q101	2SC461	SI.TRANSISTOR	
	Q102	2SC535	SI.TRANSISTOR	
	Q103	2SC461	SI.TRANSISTOR	
	Q111	2SD2144S(VW)	SI.TRANSISTOR	
	Q112	2SD2144S(VW)	SI.TRANSISTOR	
	Q113	2SD2144S(VW)	SI.TRANSISTOR	
	Q114	2SD2144S(VW)	SI.TRANSISTOR	
	Q121	DTA124ES	DIGITAL TRANSISTOR	
	Q123	2SC2060(Q,R)	SI.TRANSISTOR	
		CAPACITORS		
	C101	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C102	QETN1EM-107Z	100MF 25V E.CAP.	
	C103	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C104	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C105	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C107	QETN1EM-226Z	22MF 25V E.CAP.	
	C109	QETN1EM-226Z	22MF 25V E.CAP.	
	C111	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C112	QCT30CH-120Y	12PF 50V CER.CAP.	
	C113	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C117	QCSB1HK-5R6Y	5.6PF 50V CER.CAP.	
	C118	QCSB1HJ-150Y	15PF 50V CER.CAP.	
	C121	QCT30CH-180Y	18PF 50V CER.CAP.	
	C122	QCT30CH-180Y	18PF 50V CER.CAP.	
	C123	QCC21EM-473	0.047MF 25V CER.CAP.	
	C126	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C128	QENB1HM-474	0.47MF 50V NP E.CAP.	
	C129	QCGB1HK-102	1000PF 50V CER.CAP.	
	C130	QETN1EM-107Z	100MF 25V E.CAP.	
	C133	QETN1EM-226Z	22MF 25V E.CAP.	
	C134	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C135	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C136	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C137	QCBB1HK-391Y	390PF 50V CER.CAP.	
	C139	QFLB1HJ-473	0.047MF 50V MYLAR CAP.	
	C140	QFLB1HJ-473	0.047MF 50V MYLAR CAP.	
	C141	QCC21EM-473	0.047MF 25V CER.CAP.	
	C143	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C144	QCC21EM-473	0.047MF 25V CER.CAP.	
	C146	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C147	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C148	QETN1HM-474Z	0.47MF 50V AL E.CAP.	
	C149	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C150	QETN1EM-226Z	22MF 25V E.CAP.	
	C156	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C157	QCC21EM-473	0.047MF 25V CER.CAP.	
	C158	QETN1EM-226Z	22MF 25V E.CAP.	
	C161	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C162	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C163	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C164	QCC21EM-473	0.047MF 25V CER.CAP.	
	C168	QFV81HJ-274	0.27MF 50V THIN FILM CAP.	
	C180	QETN1EM-107Z	100MF 25V E.CAP.	
	C181	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C182	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C183	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C184	QETN1EM-107Z	100MF 25V E.CAP.	
	C185	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C186	QETN1HM-105Z	1MF 50V AL E.CAP.	
	C191	QCBB1HK-820Y	82PF 50V CER.CAP.	
	C192	QCSB1HJ-470	47PF 50V CER.CAP.	
	C193	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C194	QCHB1EZ-223	0.022MF 25V CER.CAP.	
	C195	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C196	QETN1EM-226Z	22MF 25V E.CAP.	
	C197	QCZ0205-155	1.5MF 25V C.CAP.	
	C199	QETN1EM-226Z	22MF 25V E.CAP.	
		RESISTORS		
	R102	QRD167J-332	3.3K 1/6W CARBON RES.	
	R103	QRD161J-221	220 1/6W CARBON RES.	
	R104	QRD167J-272	2.7K 1/6W CARBON RES.	
	R105	QRD161J-391	390 1/6W CARBON RES.	
	R106	QRD161J-102	1K 1/6W CARBON RES.	
	R107	QRD161J-561	560 1/6W CARBON RES.	
	R108	QRD167J-332	3.3K 1/6W CARBON RES.	
	R109	QRD161J-221	220 1/6W CARBON RES.	
	R110	QRD161J-472	4.7K 1/6W CARBON RES.	
	R111	QRD161J-472	4.7K 1/6W CARBON RES.	
	R112	QRD161J-472	4.7K 1/6W CARBON RES.	
	R113	QRD161J-103	10K 1/6W CARBON RES.	
	R114	QRD161J-122	1.2K 1/6W CARBON RES.	
	R115	QRD161J-104	100K 1/6W CARBON RES.	
	R116	QRD161J-472	4.7K 1/6W CARBON RES.	
	R119	QRD161J-103	10K 1/6W CARBON RES.	
	R121	QRD161J-473	47K 1/6W CARBON RES.	
	R122	QRD161J-472	4.7K 1/6W CARBON RES.	
	R124	QRD161J-222	2.2K 1/6W CARBON RES.	
	R126	QRD167J-562	5.6K 1/6W CARBON RES.	
	R127	QRD167J-822	8.2K 1/6W CARBON RES.	
	R128	QRD161J-472	4.7K 1/6W CARBON RES.	
	R129	QRD161J-222	2.2K 1/6W CARBON RES.	
⚠	R130	QRZ0077-680	68 1/4W FUSIBLE RES.	
	R131	QRD161J-103	10K 1/6W CARBON RES.	
	R132	QRD161J-102	1K 1/6W CARBON RES.	
	R133	QRD167J-822	8.2K 1/6W CARBON RES.	
	R134	QRD161J-102	1K 1/6W CARBON RES.	
	R140	QRD161J-563	56K 1/6W CARBON RES.	
	R141	QRD161J-472	4.7K 1/6W CARBON RES.	
	R142	QRD161J-470	47 1/6W CARBON RES.	
	R143	QRD167J-562	5.6K 1/6W CARBON RES.	
	R144	QRD167J-332	3.3K 1/6W CARBON RES.	
	R145	QRD161J-103	10K 1/6W CARBON RES.	
	R146	QRD167J-562	5.6K 1/6W CARBON RES.	
	R147	QRD161J-273	27K 1/6W CARBON RES.	
	R148	QRD161J-561	560 1/6W CARBON RES.	
	R150	QRD161J-101	100 1/6W CARBON RES.	
	R157	QRD161J-182	1.8K 1/6W CARBON RES.	
	R158	QRD161J-182	1.8K 1/6W CARBON RES.	
	R161	QRD161J-102	1K 1/6W CARBON RES.	
	R162	QRD161J-102	1K 1/6W CARBON RES.	
	R163	QRD161J-472	4.7K 1/6W CARBON RES.	
	R164	QRD161J-472	4.7K 1/6W CARBON RES.	
	R181	QRD161J-102	1K 1/6W CARBON RES.	
	R182	QRD161J-103	10K 1/6W CARBON RES.	
	R183	QRD161J-103	10K 1/6W CARBON RES.	
	R184	QRD161J-103	10K 1/6W CARBON RES.	
	R191	QRD161J-222	2.2K 1/6W CARBON RES.	
		OTHERS		
		EMW10684-003A	CIR.BOARD	
	L111	EQL4007-150T	INDUCTOR	
	T111	EQR7121-006	RF COIL	
	T141	QQR0613-001	I.F.TRANSFORMER	
	T142	QAX0303-001	CERAMIC FILTER	
	X121	ECX0007-200KWJ1	CRYSTAL	
	X191	VCX5057-001	CRYSTAL	
	X192	EFO-EC4004T4	CERAMIC RESONATOR	
	AT101	EMB41YV-302K	ANTENNA TERMINAL	
	BK001	E308963-223SM	SHIELD BKT	
	CF101	QAX0285-001Z	CERAMIC FILTER	
	CF102	QAX0285-001Z	CERAMIC FILTER	
	CN111	EMV5163-012R	CONNECT TERMINAL	
	CN112	EMV5109-005A	MALE CONNECTOR	
	FL141	EQF0101-013	LOWPASS FILTER	
	FL142	EQF0101-013	LOWPASS FILTER	
	RF101	QAU0005-001	FRONT END	

■ Electrical Parts List (Changer Control P.C.Board)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC801	UPD65612GB-208	I.C(M)	
	IC802	TA8409S	I.C(MONO-ANALOG)	
	IC803	TA8409S	I.C(MONO-ANALOG)	
		CAPACITORS		
	C801	QEK51AM-107	AL E.CAP.	
	C802	QEK51EM-475	AL E.CAP.	
	C803	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C804	QCFB1HZ-104Y	0.1MF 50V CER.CAP.	
	C805	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C806	QEK51CM-476	AL E.CAP.	
	C808	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C810	QCZ0205-155	1.5MF 25V C.CAP.	
	C811	QCZ0205-155	1.5MF 25V C.CAP.	
	C813	QCVB1CM-103Y	0.01MF 16V CER.CAP.	
	C821	QCBB1HK-102Y	1000PF 50V CER.CAP.	
		RESISTORS		
	R805	QRD161J-102	1K 1/6W CARBON RES.	
	R806	QRD161J-471	470 1/6W CARBON RES.	
	R807	QRD161J-471	470 1/6W CARBON RES.	
	R808	QRD161J-102	1K 1/6W CARBON RES.	
	R810	QRD161J-684	680K 1/6W CARBON RES.	
	R811	QRD161J-105	1M 1/6W CARBON RES.	
	R813	QRD161J-102	1K 1/6W CARBON RES.	
	R814	QRD161J-102	1K 1/6W CARBON RES.	
	R815	QRD161J-102	1K 1/6W CARBON RES.	
	R816	QRD161J-102	1K 1/6W CARBON RES.	
	R817	QRD161J-102	1K 1/6W CARBON RES.	
	R818	QRD161J-102	1K 1/6W CARBON RES.	
	R819	QRD161J-102	1K 1/6W CARBON RES.	
	R820	QRD161J-102	1K 1/6W CARBON RES.	
	R821	QRD161J-102	1K 1/6W CARBON RES.	
	R822	QRD161J-102	1K 1/6W CARBON RES.	
	R823	QRD161J-102	1K 1/6W CARBON RES.	
	R824	QRD161J-102	1K 1/6W CARBON RES.	
	R825	QRD161J-102	1K 1/6W CARBON RES.	
	R826	QRD161J-102	1K 1/6W CARBON RES.	
	R827	QRD161J-102	1K 1/6W CARBON RES.	
	R828	QRD161J-102	1K 1/6W CARBON RES.	
	R829	QRD161J-102	1K 1/6W CARBON RES.	
	R830	QRD161J-102	1K 1/6W CARBON RES.	
	R832	QRD161J-181	180 1/6W CARBON RES.	
	R833	QRD161J-102	1K 1/6W CARBON RES.	
	R834	QRD161J-102	1K 1/6W CARBON RES.	
	R839	QRD167J-332	3.3K 1/6W CARBON RES.	
	R840	QRD167J-562	5.6K 1/6W CARBON RES.	
		OTHERS		
		VMW1377-004X	PW BOARD	
		SBSF2608Z	TAPPING SCREW	
		VYH7237-001SS	IC HOLDER	
	L801	VQP0018-100	INDUCTOR	
	L802	VQP0033-100Z	INDUCTOR	
	L803	VQP0033-100Z	INDUCTOR	
	L804	VQP0033-100Z	INDUCTOR	
	CN801	VMC0163-R10	CONNECT TERMINAL	
	CN802	VMC0289-P07	CONNECT TERMINAL	
	CN803	VMC0324-12310	CONNECT TERMINAL	
	CN804	VMC0289-S07K	CONNECTOR	

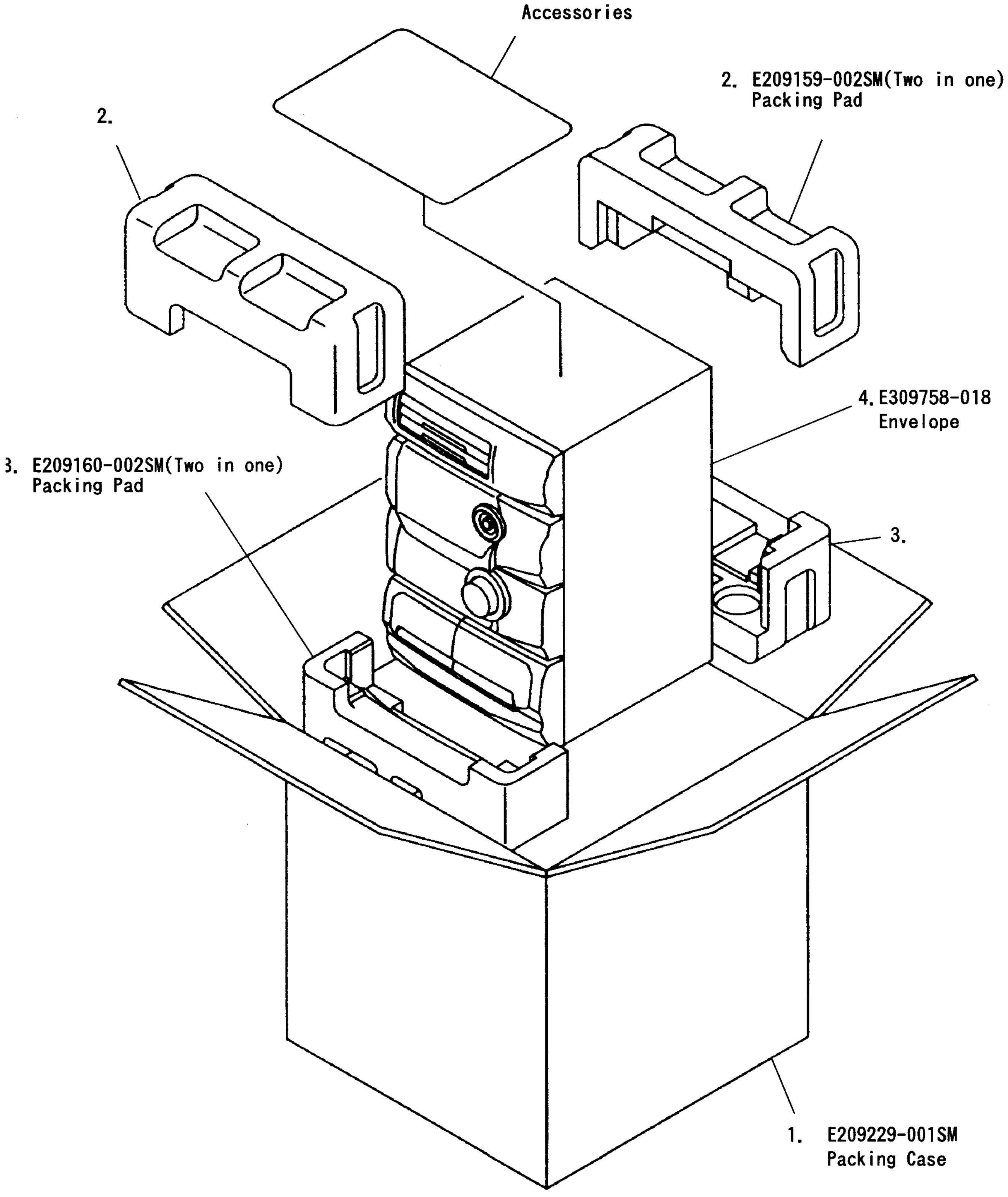
Accessories List

Block No. M5MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	E30580-2545A	INSTRUCTION BOOK	1		EF G
		E30580-2546A	INSTRUCTION BOOK	1		EN
	2	E309758-003	POLY BAG	1		
	3	EQB4001-015	LOOP ANTENNA	1		
	4	BT-20134	WARRANTY CARD	1		G
	5	EWP503-001	ANTENNA WIRE	1		
	6	RM-SED60TRU	WIRE-LESS REMOTE CONTROL	1		
	7	R6SPTT-2ST	BATTERY	1		

Packing Materials and Part Numbers

Block No. M6MM


Accessories
2.
2. E209159-002SM(Two in one)
Packing Pad
4.E309758-018
Envelope
3. E209160-002SM(Two in one)
Packing Pad
3.
1. E209229-001SM
Packing Case